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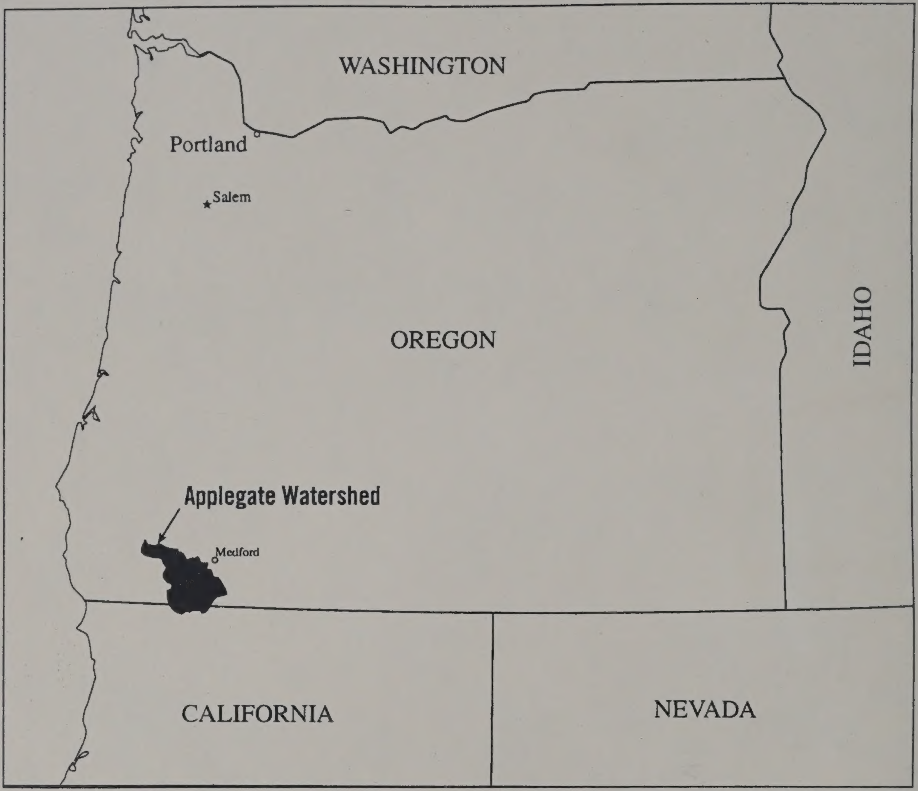
September 1998

Applegate Adaptive Management Area Guide


WASHINGTON
Portland
Salem
OREGON
IDAHO
Applegate Watershed
Medford
CALIFORNIA
NEVADA

The Applegate Adaptive Management Area occupies most of the Applegate River Watershed. The nearly half-million acre watershed is located in the southwest portion of Oregon and northern California.

cover: watercolor by Debra VanPoolen

APPLEGATE ADAPTIVE MANAGEMENT AREA GUIDE

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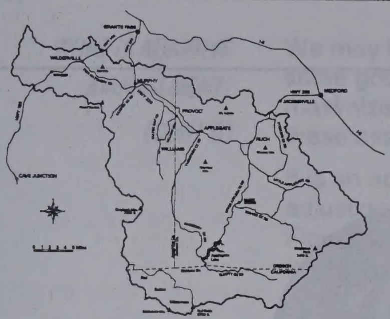


APPLEGATE ADAPTIVE MANAGEMENT AREA GUIDE

> "I conceive that land belongs for use to a vast family of which many are dead, few are living, and countless members are still unborn."
>
> – A Nigerian tribesman

PART 1 –INTRODUCTION

THIS GUIDE SUMMARIZES:

- Information about the biophysical, social, and economic aspects of the Applegate Adaptive Management Area
- Public and agency issues across multiple jurisdictions
- Key questions reflecting what people want to learn from this experiment
- Strategies and future actions which are most responsive to social and resource issues.

The Applegate Adaptive Management Area includes lands administered by the U.S. Department of Interior Bureau of Land Management (BLM) and the U.S. Department of Agriculture Forest Service (FS) in southwest Oregon within the Applegate River Watershed (see Appendix G Map 1). Approximately seventy percent of the Applegate River watershed is federally-managed; all federal lands, with the exception of the Red Buttes Wilderness, are in the Applegate Adaptive Management Area (AMA) totaling 324,669 acres (see Figure 1, Land Ownership and Management). The Applegate AMA includes lands in: the Applegate Ranger District and Ashland Ranger District of the Rogue River National Forest, the Galice Ranger District of the Siskiyou National Forest, and the Ashland Resource Area and Grants Pass Resource Area of the Medford District BLM.

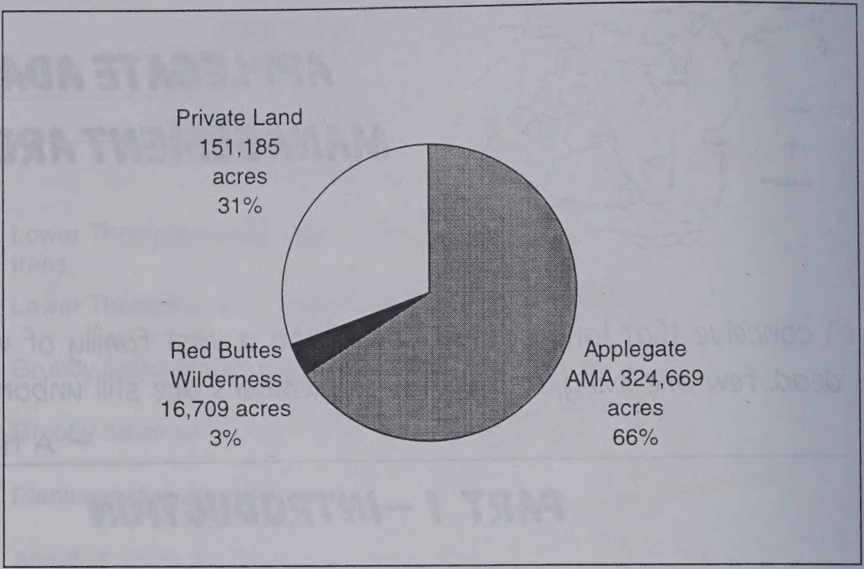


FIGURE 1. LAND OWNERSHIP AND MANAGEMENT IN THE APPLEGATE RIVER WATERSHED.

Since 1994 numerous interagency teams have worked together on various assessments, including *Applegate Adaptive Management Area Ecosystem Assessment: Aquatic, Wildlife, and Special Plant Assessment for the Applegate Watershed*; *Southwest Oregon Late-Successional Reserve Assessment*; *Little Applegate Watershed Analysis*; and others. A wealth of information has been accumulated about historical, current, and desired future conditions of the Applegate River watershed (see Appendix A: Completed Studies).

WHAT IS ADAPTIVE MANAGEMENT?

The terms "adaptive management" and "adaptive management areas" are relatively new to some people.

Adaptive management describes an approach to management.

Adaptive management area refers to a specific place.

The term Adaptive Management is used to describe an approach to making management decisions about complex systems, including ecosystems, which emphasizes conscious experimentation and learning.

In brief, adaptation is action in response to learning. Adaptive management is a strategy for dealing with uncertainty by explicitly designing management activities as *experiments and learning opportunities.*

Natural ecosystems are enormously complex. Adaptive management begins with the assumption that we cannot know everything about an ecosystem.

WHAT IS ADAPTIVE MANAGEMENT? (CONT'D)

We may have some excellent information about parts of ecosystems and some good theories about the way they seem to work, but in order to maximize our learning about these systems we need to continually test these assumptions and theories, (Olympic Learning Center, 1997).

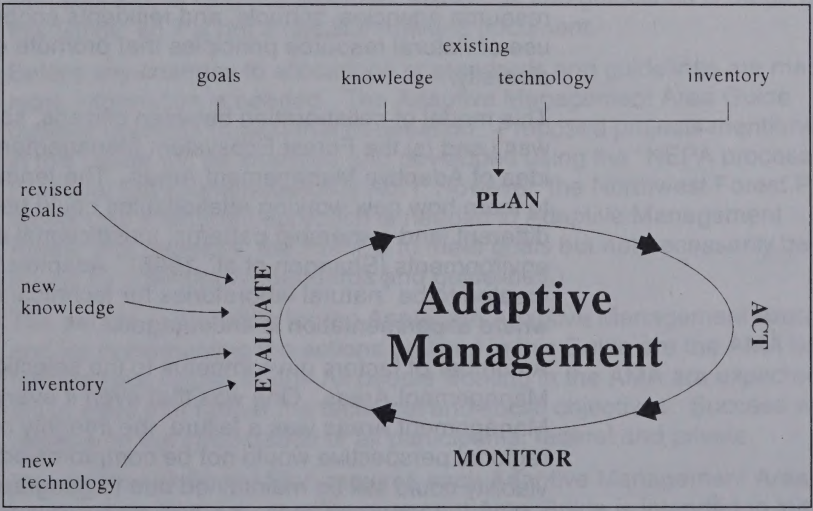
It is an action-based process of planning, implementing, monitoring, and adjusting–with the objective of improving future projects (as illustrated in Figure 2, Adaptive Management Process). Or, stated simply: "Do it, learn, and do it better". The need to learn is made more evident by the fact that "future conditions cannot be predicted and controlled with great certainty, and that a single best practice cannot be determined in advance" (Bormann et al., 1996).

The inevitable occurrence of surprise is incorporated within adaptive management, i.e., since we cannot fully or accurately predict consequences of our actions, "we must always be prepared to modify our behavior according to the results that eventuate from these actions" (Stankey and Clark, 1998). A surprising outcome gives us the opportunity to learn.

Key ingredients of adaptive management include:

- Being proactive–anticipating new information and explicitly recognizing uncertainty
- Designing management as an experiment
- Using information to improve management

FIGURE 2. ADAPTIVE MANAGEMENT PROCESS (FROM THE NORTHWEST FOREST PLAN, 1994)



WHAT IS AN ADAPTIVE MANAGEMENT AREA?

The designation of ten Adaptive Management Areas (AMAs) came from the Northwest Forest Plan. (The term "Northwest Forest Plan" refers to the 1994 *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of Northern Spotted Owl*, United States Department of Agriculture and United States Department of the Interior.) A brief history of this evolution may help set the context for the Adaptive Management Areas (AMAs).

The President of the United States called a Forest Conference in Portland, in 1993 to try to bring resolution to the impasse that had brought federal timber sales to a standstill in the region of the spotted owl.

Following the Forest Conference, the President charged a team of scientists with developing a strategy that would preserve the ecological integrity of the ecosystems and that would be balanced with the social needs in the communities. The team is known as the Forest Ecosystem Management Team (FEMAT).

During the year preceding the Forest Conference, community-based coalitions had formed in the Applegate and in Hayfork, California. Previously, there were few examples in the northwest of diverse people in communities coming together of their own accord to create solutions for natural resource issues. Several groups "sponsored" by state or federal agencies existed, but the Applegate Partnership was unique in that it was a group of local individuals who "empowered" themselves and invited state and federal participation. The Applegate Partnership is a community-based group involving industry, conservation groups, natural resource agencies, schools, and residents cooperating to encourage the use of natural resource principles that promote ecosystem health and diversity.

This model of collaboration between citizens, scientists, and managers was used by the Forest Ecosystem Management Team in creating the idea of Adaptive Management Areas. The team considered it important to learn how new working relationships could be developed across different land ownership patterns, jurisdictional arrangements, and social environments (Shannon et al., 1996). Adaptive Management Areas were created to be "natural laboratories for technical and social learning" where experimentation is encouraged.

A number of factors gave impetus to the selection of the Adaptive Management Areas. One was that even if everything tried in the Adaptive Management Areas was a failure, the integrity of the ecosystem from a regional perspective would not be compromised–that meant that species viability could still be maintained due to geographic proximity to other habitats (Franklin, 1996). Another factor was the proximity of Adaptive Management Areas to communities that were subject to adverse economic impact resulting from reduced federal timber harvest (Northwest Forest Plan, 1994).

WHAT IS AN ADAPTIVE MANAGEMENT AREA? (CONT'D)

The Adaptive Management Areas were established to allow innovative and creative resource management approaches that may be different from those outlined in the Northwest Forest Plan. These Areas are intended to "export" this learning to other areas to help them be more efficient and responsive. While there are similarities between goals of these Adaptive Management Areas, each has a separate emphasis and a different dynamic relationship between the various landowners and managers, the economies, and the ecology of the area (see Appendix G, Map 2. Adaptive Management Areas).

PURPOSE OF THE APPLEGATE ADAPTIVE MANAGEMENT AREA GUIDE

The Adaptive Management Area Guide is a working document outlining how agencies expect to do business in the Applegate River watershed over the next several years. First, the Adaptive Management Area Guide summarizes known information about the Applegate Adaptive Management Area and the Applegate River watershed. Then the key questions, strategies, and actions are outlined giving direction for the agencies. Both the Bureau of Land Management and Forest Service agree to these steps contributing to a more comprehensive management approach. Key questions and strategies in the Adaptive Management Area Guide reflect extensive dialogue and cooperation between citizens, scientists, and agency participants between 1994 and 1998 for the Applegate Adaptive Management Area. The questions reflect what people want to know.

The Adaptive Management Area Guide is not intended to be a vehicle for documenting in-place management decisions. No change in land allocations or in land management standards and guidelines is made by this Guide, so it is not a decision-making document.

Before any changes to allocations or standards and guidelines are made, more information is needed. The Adaptive Management Area Guide outlines methods to gain that information. Proposed projects mentioned in this Guide will be analyzed and developed using the "NEPA process" (National Environmental Policy Act.) However, the Northwest Forest Plan recognizes a different approach is needed in Adaptive Management Areas. (For example, the intent is to meet goals but not necessarily be bound by prescriptive standards and guidelines.)

The people responsible for the Applegate Adaptive Management Area and for implementing the actions outlined in this Guide are the AMA line officers (see Appendix D). All people working in the AMA are expected to act in ways that further the technical and social objectives. Success will depend on the cooperation of all participants, federal and private.

WHY A GUIDE RATHER THAN A PLAN?

The Northwest Forest Plan requires each Adaptive Management Area to have a plan. The Adaptive Management Area Guide is intended to initiate that process for the Applegate Adaptive Management Area. Why, then, are we writing a "guide," rather than a "plan"? An agency plan usually contains decisions regarding allocation of lands or resources to specific uses and (or) specific standards and guidelines required.

WHY A GUIDE RATHER THAN A PLAN? (CONT'D)

However, due to the complexity of multiple jurisdictions and resource issues as well as social and institutional capacity, an Adaptive Management Area-wide integrated plan is not yet possible.

A new approach is needed as we build adaptive management into integrated planning across multiple jurisdictions. It has been argued that the day of producing a single plan for areas that have intermixed ownership such as the Applegate is past. There is no model for this approach. In fact, it may be impossible to develop a fixed set of assumptions, allocations, standards and guidelines that could remain in effect for any length of time. Instead, integrated planning must be set in a context of adaptive management and have appropriate flexibility built in. Rather than resolve that overarching challenge, this Guide is intended to provide the foundation and framework for the Adaptive Management Area to move forward toward a plan by outlining the goals, issues, key questions, and priorities for action.

Since 1994, experiments in integrated planning have been launched on various scales in a number of different efforts (see the discussion in Setting, Interagency Organization, Ongoing Projects, e.g., Carberry, Sturgis, and Little Applegate Landscape Design Projects). These projects are being tested and evaluated and may provide valuable insights for a broader Adaptive Management Area-wide plan.

Before an integrated plan can be developed, more information is needed about resources, how to forecast trends and effects across intermixed private and federal lands, and how to increase collaboration. Trusting relationships are also needed requiring time and appropriate actions (results!) Increased collaboration between agencies and communities and between the agencies themselves is needed. (Note: the term "communities" is used throughout this document and refers to individuals and groups interested in the area.)

USE OF THE APPLEGATE ADAPTIVE MANAGEMENT AREA GUIDE (HOW CAN IT SERVE ME?)

The Applegate Adaptive Management Area Guide is a working document outlining how the agencies expect to do business over the next several years in the area. The Guide not only describes this approach, but also helps everyone interested in the Adaptive Management Area understand how their concerns can be reflected in management activities and decisions. The approach is designed to be collaborative, flexible, and dynamic so that changes can be made quickly to incorporate new learning, clarify goals, adjust for changing conditions, and summarize planned projects.

USE OF THE APPLEGATE ADAPTIVE MANAGEMENT AREA GUIDE

(HOW CAN IT SERVE ME?)

(CONT'D)

The Adaptive Management Area Guide serves as a quick reference document for people wanting a brief background of the history, natural resources, social, economical or institutional arrangements (see Setting). *More detail about those topics can be found in the reference documents listed in Appendix A: Completed Studies.* The Systems section describes the key issues, questions, and strategies for moving the Applegate Adaptive Management Area forward. Restoration and timber sale projects in progress and those likely to be developed over the next several years are described in Appendix B. Brief descriptions of ongoing research and monitoring projects including contact names are provided in Appendix C. Key agency contacts, phone numbers, and addresses can be found in Appendix D. An excellent resource for public involvement is found in Appendix E. Internet access information is listed in Appendix F.

Guidelines for Project Design offers a useful checklist for project planners in the Adaptive Management Area (see Systems, Interagency Organization). Timber sale projections are described in the same section and in Appendix B.

RELATIONSHIP TO OTHER AGENCY PLANS

The Applegate Adaptive Management Area Guide is consistent with the suggested outline given in the Northwest Forest Plan. It is also consistent with the Forest Plans for the Rogue River National Forest and Siskiyou National Forest (which were amended by the Northwest Forest Plan), as well as the Resource Management Plan of the Medford District BLM.

Referring to Adaptive Management Areas, the Northwest Forest Plan says:

> *"Standards and guidelines of current plans... need to be considered during the planning and implementation of activities within Adaptive Management Areas, and may be modified in Adaptive Management Area plans based on site-specific analysis. Otherwise standards and guidelines are to be developed to meet the objectives of the Adaptive Management Area and the overall strategy."*

Individual projects, watershed analyses, and other assessments provide more specific recommendations and direction. The intent of this Guide is to provide an overall framework for these analyses and to complement what has already been done.

OVERALL ADAPTIVE MANAGEMENT AREA GOALS AND APPROACHES

The overall goal for Adaptive Management Areas is to develop and test technical and social approaches to achieving desired ecological, economic, and other social objectives (Northwest Forest Plan, 1994). Citizens, managers, and scientists are encouraged to "learn how to learn" by working together in Adaptive Management Areas to implement ecosystem management. *Technical* approaches are broad–from an emphasis on maintaining ecosystem health to integration of commercial timber harvest with ecological objectives.

OVERALL ADAPTIVE MANAGEMENT AREA GOALS AND APPROACHES (CONT'D)

S*ocial* and *economic* approaches include such things as: collaboration among interested people and agencies, testing policies and different approaches to management exploring a variety of community involvement and participation methods, seeking new funding sources, increasing employment and education opportunities for people in local communities, and exploring new information technologies and access to those technologies.

Adaptive Management Areas, according to the Northwest Forest Plan, are "intended to be prototypes of how forest communities might be sustained." Innovation and creativity are expected to occur in the Adaptive Management Areas; *learning itself is an objective of management.* The Adaptive Management Areas will provide tangible examples of new ways of doing business as well as specific information for the major physiographic provinces.

George Stankey and Roger Clark (1998) have summarized additional points that were part of the underlying vision for the Adaptive Management Area system including:

- The Adaptive Management Areas serve the role as the "official settings" in which assumptions underlying the Northwest Forest Plan and the associated prescriptive, uniform standards and guides can be tested, validated, and/or modified, potentially leading to changes in their application in areas outside the Adaptive Management Areas. Since the knowledge base (upon which these standards and guidelines were founded) was incomplete, this role for Adaptive Management Areas is especially critical
- Designed to foster learning, the Adaptive Management Areas are intended to use new approaches to research, management, and public collaboration. They provide opportunities for people to develop and scientifically examine new ways of doing forest management and research. Adaptive Management Areas are distinct from other land management allocations described in the Northwest Forest Plan. "Within Adaptive Management Areas, it is not only acceptable, but necessary, to take risks."
- The creation of Adaptive Management Areas was a means to "ensure that science was focused on management needs in both the short and long run, to overcome gaps in knowledge, and to ensure timely use of new scientific findings."
- The Adaptive Management Areas are settings "where new connections among interests–community, science, management–could be explored." The Adaptive Management Areas offer working laboratories where we can experiment in how we could organize to achieve ecosystem objectives and how we might define the roles and responsibilities of the various interests

OVERALL ADAPTIVE MANAGEMENT AREA GOALS AND APPROACHES (CONT'D)

An adaptive approach to management will likely characterize the future–it will become the "norm". The difficulty in resolving complex socio-political and natural resource issues is increasing. It will be even more critical to develop "management frameworks that are capable of working in situations involving high levels of uncertainty." The Adaptive Management Areas provide the chance to develop the "skills, approaches, and thinking necessary to meet the challenges of tomorrow."

More detailed information about the Adaptive Management Areas, their background and goals can be found in the Northwest Forest Plan (1994) D1-17, Forest Ecosystem Management Team report (1993) Chapter VIII, and in numerous other articles referenced in Literature Cited.

APPLEGATE ADAPTIVE MANAGEMENT AREA OBJECTIVES

In the Northwest Forest Plan each Adaptive Management Area was given a focus or "emphasis." The intent of these emphases was to provide a general focus, but "[they] were not intended by the Forest Ecosystem Management Team to limit or constrain the kinds of projects or activities taken within any one area" (Clark and Stankey, 1998).

The emphasis given for the Applegate is:

"to develop and test variations on established management practices including partial cutting, prescribed burning, and low-impact approaches to forest harvest (e.g., aerial systems) to provide for a broad range of forest values, including late-successional forest and high quality riparian habitat" (Northwest Forest Plan, 1994.)

Several of the terms used in this objective need definition.

- *Partial cutting* refers to a variety of ways to cut selected trees from a forest
- *Prescribed burning* is the use of intentionally set fires under very specific conditions of weather, fuel moisture, and fire behavior. A prescribed fire can result from either planned or natural ignition, for instance, allowing lightning-ignited fires to burn only under specific conditions. Prescribed fire can also be used before or after cutting trees, e.g., as a "thinning" tool or cleaning up hazardous fuels left after logging
- A *late-successional forest* has mature and old growth characteristics (mature and old growth refer to the later stages of a forest where trees are largest, growth slows down, and structural diversity develops
- *Riparian habitat* refers to habitat within a geographic area containing an aquatic ecosystem and the adjacent upland areas that directly affect it

APPLEGATE ADAPTIVE MANAGEMENT AREA OBJECTIVES (CONT'D)

- *High quality habitat* in riparian areas includes those factors contributing to highly functioning stream, (i.e., vegetation offering an adequate amount of shade, large wood, and diversity.) High quality habitat also refers to optimum stream conditions for fish with characteristics including adequate stream flow, clarity, temperature, pools and riffles, etc.

More broadly, the Applegate Adaptive Management Area has focused on sustainability and what that means to the land and the associated communities. People have very different ideas of what sustainability is reflecting values of those involved. Questions arise about what should be sustained, for how long, and for whom? Terms like "forest sustainability" can be applied at varying scales (e.g., "stand" or groups of trees, landscapes, and regions (Amaranthus, 1998.) And although differences exist surrounding these terms, we want to define, assess, and monitor sustainability in the Applegate Adaptive Management Area while testing other social and technical objectives

PART 2 —VISION AND GOALS

APPLEGATE ADAPTIVE MANAGEMENT AREA VISION

The plans and activities of the Applegate Adaptive Management Area have been guided by a set of visions and goals that have evolved over the last six years. The Bureau of Land Management and Forest Service have been working with interested people outside the agencies in defining what kind of relationship we can commit to among the participants and with the land. "We" refers to people in the agencies and to private citizens who participate in the management of public lands within the Applegate Adaptive Management Area, through attending meetings, field trips, and the vigorous debates that always surround land management issues.

It is very difficult for a diverse group of energetic and opinionated individuals to come to agreement on a coherent and articulated vision to guide their work. However, in natural resource management, projecting such goals and visions can create paths that public land managers and private land owners can use to cooperatively work toward seemingly distant goals. There is a shared belief in the Applegate Adaptive Management Area that the future condition of the area will largely be the product of the work that we put into our vision now. So imagine, if you will:

FROM THE AIR

Toward the middle of the next century, an aircraft is crossing the Siskiyou Mountains on an approach to a small rural airport in the Applegate Valley. A passenger sits with her face pressed to the window. She is feeling lucky to be here, as the delegate from her environmental planning organization. She competed hard for the privilege of attending this conference, and enjoys the rewarding view from her window as her plane steeply descends to the valley floor. It is evident to her trained eye that focused efforts have been made to create an environment for all inhabitants. She witnesses the surrounding pristine mountains, noticing the gradual blend of farmlands, hillside homes, and rural towns. She has studied the history of the Applegate River watershed and the federal lands included in the Applegate Adaptive Management Area. She is eager to learn more about how the residents have created and maintained a healthy, sustainable forest ecosystem that contributes to the local economic community.

From a few thousand feet up, her eyes travel eagerly over the variety of forms on the ground. She notices that most north-facing slopes, particularly those of the mid- and higher elevations, are primarily covered by large trees. These forests, having been thinned and treated as needed over the past century, have become late-successional and old-growth habitats.

FROM THE AIR (CONT'D)

A noted success of the Applegate Adaptive Management Area was described in her research notes: an estimated 30% or more of the forested landscape is functioning as habitats for late-successional organisms. In the higher elevation areas, a true fir forest has grown and progressed into varying stages of advanced maturity. Crossing low over the ridge, she spots downed wood and tall old snags, and feels satisfied that the forest provides homes for wildlife.

The plane descends across the mid-elevation slopes of the Applegate Valley. She sees a gradient of gradual changes from the lowlands to the Siskiyou peaks. Open, park-like woodlands of pines, California black oak and Oregon white oak are seen on the lower hillsides, dispersed among patches of understory brush. A lush layer of native herbs and grasses carpets the woodland floor.

ON THE GROUND

She is met at the airport by her host from the Applegate Partnership, and they drive out through the Applegate Valley along the foothills surrounding the valley floor. In many places, native grasses have been reestablished, and the diligent eradication efforts of the communities and the agencies have eliminated the once ubiquitous noxious weeds such as the yellow star thistle.

The coniferous forest reflects both small scale natural disturbances and broad scale purposeful management. Young Douglas-fir stands, that were the target of aggressive thinning efforts in the late 1900s and early part of the twenty-first century, have grown to become towering overstory trees. Conspicuous clearcuts that once fragmented the landscape are not as evident and in time, will no longer be distinguishable. Ongoing implementation of experimental programs involving habitat improvement and forest structure diversification have created forests of great ecological complexity, facilitating the enrichment of biological diversity, ecosystem stability and productivity.

Later as she walks through the forest with some Applegate Valley neighbors, she notices that some areas of the forest floor have logs of all sizes in various stages of decay. On top of the older logs are mats of moss. Scattered throughout the forest she sees Oregon grape, ferns, young fir stands, and signs of wildlife activity. The variety of diverse and healthy vegetative habitats provides for an Adaptive Management Areazing diversity of wildlife and plants.

For many years the land managers and neighbors in the Applegate Valley have worked to prevent undesirable catastrophic forest fires. The pattern of management shows as an outline of large towering trees on some ridge lines where shaded fuel breaks protect lowland communities and hillside homes.

Other ridge lines are not as readily evident, although close inspection shows that thinning of trees has occurred. Continual recognition and treatment of potential fire hazards has become institutionalized. In some areas, underburning and wildfires have swept the forest understory clean of brush and fuel, creating variable density patterns.

ON THE GROUND (CONT'D)

In the mid-to lower elevations of the south slopes, openings–once created to encourage the establishment of shade intolerant species–are occupied by ponderosa pines, many of substantial size. Dense stands of white fir and sugar pine grade into sub-alpine meadows. Forests with serpentine soil appear much as they did in the 1900s, characterized by Jeffery pine and incense cedar trees scattered across jutting outcrops and talus slopes.

She sees the Applegate River as a treasure–with farms and homes sprinkled among wetlands, side channels, beaver dams and riparian vegetation with room for roosting birds like great blue herons and osprey. The river way is narrow in some places and wide in others, depending upon the balance between human needs and uses of the land and the river's natural meander pattern and floodplain areas. Public park areas, with trails and river access help ease river access pressure for private landowners

Spawning gravel, side channels, wood, meanders and other aspects of a healthy river increase and improve fish habitat. No fish are listed as "threatened" or "endangered" any longer in the Applegate since the successful cooperative restoration efforts of the early twenty-first century among private landowners and agencies. Her companions are eagerly anticipating the Salmon Festival, an annual September event, where they also share the agricultural and wild land bounty of the area. She learns that irrigation water problems are resolved on the state level, so that irrigators do not have to "use or lose" their water every year. Steelhead and cutthroat trout have returned to these once fish-less streams. Gravel mining operations continue, and are part of river restoration projects that are carefully planned to prevent any flood-related problems and damage to instream habitat.

Roads along tributaries in forested areas (including federal roads) have been redesigned and rerouted to avoid damaging and constricting stream channels. An integrated Applegate Valley transportation plan that includes roads, trails, and other access had been created years ago with BLM, Forest Service, counties, and other private landowners. Through the process of exhaustive and respectful debate for which the Applegate community has become renowned, all parties agreed on which roads were necessary and which ones could be eliminated. State-of-the-art road restoration and design facilitated by interagency work with the Applegate River Watershed Council has eliminated sediment input into streams.

Over time, trees in riparian areas have grown larger and some have fallen across the channels. In many riparian areas smaller trees were thinned or carefully burned to give the larger trees a better chance to grow more quickly and withstand the wildfires. In smaller tributaries, trees lodge across the channel and create pools, store spawning gravel and create winter hiding habitat, all of which increase the survival of fish in these streams.

ON THE GROUND (CONT'D)

Streams which were historically dredged and severely damaged from gold-mining have been painstakingly reconstructed, one small reach after another. These streams are regaining their natural meander patterns and floodplains, reducing flood damage in downstream areas, once an inevitable result of heavy rains. She witnesses many places where headwater areas and small springs and seeps are protected from roads, grazing and timber harvest.

The ecological integrity of the Applegate River, its tributaries and the surrounding basins is intact. There is a high level of understanding and actions supporting the maintenance and restoration of the entire ecosystem. Educational programs teach children in the local schools about streams, fish, wildlife, trees, fire, floods, communities, and the whole ecosystem. The children organize salmon-watching expeditions and help agency biologists monitor fish populations. They also learn how to identify sensitive and rare plants and plant communities, pick up litter along streams and help with riparian planting projects.

It is obvious to her that the rural community takes pride in their homelands and towns. Farmlands, grazing cattle, the Applegate River, historical markers, and hillside homes are comfortably nestled within and adjacent to the Adaptive Management Area. In the blue twilight of this day, she enjoys the beauty of the variety of forest types and human uses that blankets the valley and surrounding mountains.

AT THE MEETING TABLE

The creative energy of the people of the Applegate Valley is evident and expressed through collaborative efforts with the local community, scientists, and agency managers. The visitor sees the Community Bulletin Board outside of a store's entrance, displaying time lines, goals, public meetings, and projects.

In the evening she enjoys a picnic dinner alongside the Applegate River at Cantrall-Buckley Park, which the Applegate Valley community has adopted and nurtured into a busy and beautiful meeting and recreation center. This evening's discussion centers around the issues of sustainable economic outputs that are compatible with the focus on maintaining the ecological integrity of the Applegate Valley. She knows that this inclusive focus has been key in maintaining the commitment and participation of the many diverse interests working together to maintain this model environment.

She learns that stand management practices established in the last years of the last century have helped to create productive and resilient forests. By the year 2020, many stands of trees responded with increased growth. As a result, there are opportunities to thin these stands again, providing wood products, and still leaving large trees behind in the forest. Because of population growth and the increased demand for forest products, the value of these stands greatly increased. Timber sale volumes removed from the Adaptive Management Area are sustained indefinitely and produce value and jobs for local and national economies.

AT THE MEETING TABLE (CONT'D)

Careful and continued management of the forest also provides numerous special forest products for local use. As technology advanced our ability to utilize small diameter material and brush species, new products were developed to utilize this material. There are thriving local industries using a variety of previously ignored forest wood products. Many jobs result from the need to maintain the fire resistant stands that have resulted from management strategies in place for half a century. These areas require continual maintenance to keep them resilient and safe from future fires. As the clearcuts that existed in the late 1900s have grown toward maturity, more people have jobs in maintaining these stands and moving them toward commercial-size stands of trees.

Agricultural components of Applegate valley, such as dairies, beef cattle, hay, organic farms, and specialty crops and animals are thriving. The communities work together to maintain traditional lifestyles and open spaces ensuring their compatibility with floodplains. There are many families that have maintained their residency and the productive use of their land for many generations.

The visitor hears the story of the approach to partnerships in the Adaptive Management Area. Multiple agency management of the Adaptive Management Area is transparent to the community because the approach to work together is consistent. Management activities, community and interagency education, and project development is done through collaborative efforts among all interested parties sharing in the Adaptive Management Area interests and goals.

Industrial partners continue to help develop and implement creative, environmentally sensitive and economically feasible harvesting and land treatment technologies, using new tools and innovative techniques. Citizens, scientists and federal land managers continue to test and monitor the many facets of adaptive ecosystem management practices.

Involved landowners continue in civic participation and enjoy the community spirit they have helped to create. There is a belief in “take care of our neighbors and they'll take care of us”. Community members and agencies celebrate their shared accomplishments and mistakes, recognizing that watershed restoration efforts are accomplished in a concerted, unified effort.

ON THE WAY HOME

The visitor reviews the notes she has made of her informative and exciting time in the Applegate Adaptive Management Area. She will be able to share her learning about the recipe for success in the Applegate. She types out a draft of her report on her laptop computer:

“Management actions in the Adaptive Management Area are completed with full public involvement and disclosure. Relationships between communities and agency personnel are open and honest; information is easily accessible.

ON THE WAY HOME (CONT'D)

Residents know they have a lot of control over how the land around them is managed, and do not fear the inevitable catastrophic events, such as fire and floods, because their homes and investments are appropriately and harmoniously located.

Research and monitoring are strategic and on-going. There is a shared understanding about what is meant by the terms "healthy," "sustainable," "ecosystems," "diversity," and "resilience." In the Applegate Adaptive Management Area, the partners have developed monitoring criteria and indicators that reflect their values about the ecosystem and communities. They monitor these measurable variables in order to track progress toward their vision. They are passionately committed to continual learning and they honor all different kinds of knowledge.

Value added markets have expanded to benefit both the land and community, and the economic values derived from ecosystem management are shared among all partners. Security and satisfaction are gained in the knowing that amenity and commodity outputs of this precious and unique landscape are sustainable.

The creative energy of the people of the Applegate Valley is evident and expressed through collaborative efforts with the local community, scientists, and agency managers. This area continues to be a model for the nation. The neighbor-to-neighbor style of helping works. In this context, people derive spiritual satisfaction from their physical surroundings and their desire to make a difference."

APPLEGATE ADAPTIVE MANAGEMENT AREA GOALS

To make this vision of the next century a reality, it is critically important that all partners have a shared set of goals. In addition to the overall goals common to all Adaptive Management Areas, specific goals developed collaboratively for the Applegate Adaptive Management Area include:

1. Achieve healthy, diverse, and functioning ecosystems that are sustainable over time. Define terms "sustainable," "healthy," "resilience," "ecosystem," and "diversity" as they apply to the Applegate Adaptive Management Area. The "ecosystem" refers to the interacting natural system including people and all other living organisms as well as the non-living environment. In order to foster healthy social and economic systems, we want to:

- Understand the relationships between sustainable resources and sustainable economies (supporting sustainable communities)
- Develop clear criteria and indicators of sustainability reflecting shared values and monitor measurable criteria over time

APPLEGATE ADAPTIVE MANAGEMENT AREA GOALS (CONT'D)

- Enhance the relationship of agencies to the communities adjacent to the Adaptive Management Area. We want to create a climate of trust and cooperation between agencies and private citizens
- Contribute to the economic well-being of communities where possible. (The agencies are not responsible for the communities' overall health but recognize their influence on social and economic functions.)

2. **Create adaptive organizations.** Participating agencies responsible for management of the Applegate Adaptive Management Area want to help create a learning environment which is accessible and responsive. The BLM and Forest Service want to:

- Improve the capacity for local public problem-solving across boundaries
- Gain understanding, cooperation, and mutual respect among the federal agencies, and between agencies and citizens
- Use resources efficiently
- Apply ecological principles
- Use adaptive management principles of testing, monitoring, and learning, and share this learning with all partners
- Share knowledge freely and effectively

We have a unique opportunity in the Applegate Adaptive Management Area to continue a partnership of learning between people in the communities and in the agencies.

Note: The term "health" needs clear definition as do other terms mentioned above. Terrestrial health is described in the *Applegate Adaptive Management Area Ecosystem Health Assessment* (1994) means that an area has the following characteristics:

(1) Intact physical, biotic, and trophic (soil) networks to support productive forests;

(2) Resistance to catastrophic change and the ability to recover on the landscape level (Recognizing that insects, disease, wildfire, and death are all part of the natural system and are not, in themselves, indicative of health problems. When the rate of change associated with these agents becomes greatly accelerated and the effects perceived as intense or significant, then the term "catastrophic" is appropriate);

(3) A functional equilibrium between supply and demand of essential resources (water, nutrients, light, growing space) for major portions of the vegetation; and

(4) A diversity of seral stages (transitory plant communities over time) and stand structures (layering of canopy) that provide habitat for any native species and all essential ecosystem processes.

PART 3 – SETTING

LANDSCAPE

The Applegate Adaptive Management Area totals approximately 325,000 acres of federally-managed land located in southwest Oregon and northern California (see Appendix G, Maps 1-4). It includes lands managed by the Medford District of the Bureau of Land Management and the Rogue River and Siskiyou National Forests within the Applegate River watershed (which totals approximately 500,000 acres). The Applegate River watershed is one of seven watersheds (or sub-basins) within the Rogue River Basin. (Note: the Applegate River watershed is appropriately referenced as a "sub-basin" of the Rogue River watershed. But for the purposes of this Guide, the term sub-basin will not be used since local agency and citizens commonly use the term "watershed" to refer to the Applegate.) Much of the watershed is steep and rugged, ranging from 1,000 to 7,000 feet elevation. Lower elevation areas have gentler terrain. Rainfall ranges between 20 and 100 inches per year as one moves from the lower elevations to the upper areas.

The Applegate Adaptive Management Area is made up of federal lands only, but there are numerous tracts of private lands intermixed with and adjacent to the Adaptive Management Area (see Appendix G, Map 3. Applegate Adaptive Management Area Management Units). Most of the lands managed by Bureau of Land Management (and a smaller portion of the Forest Service managed lands) are O&C lands (Oregon-and-California Railroad grant land returned to government ownership in 1916). The "checkerboard" pattern of land is the result of these old railroad lands intermingled with private ownership.

Historically, 50% of the timber receipts from the O&C lands and 25% of the Forest Service and Bureau of Land Management public domain lands have been returned to the counties, making this timber revenue an important source of funds for local operating expenses. A "safety net" was authorized by Congress in 1993 to supplement county budgets during years in which timber harvests might be limited. This legislation expires in the year 2003, although other proposals are being discussed to continue some benefit to the counties. (The issue is that in many counties there is a high percentage of lands that are in federal management and, therefore, not contributing directly to the tax base.)

Seven land allocation areas (or "zones") were created for federally-administered lands in the Northwest Forest Plan. These land allocations are: (1) Congressionally Reserved Areas (e.g., wildernesses); (2) Late-Successional Reserves; (3) Adaptive Management Areas; (4) Managed Late-Successional Areas; (5) Administratively Withdrawn Areas; (6) Riparian Reserves; and (7) Matrix.

LANDSCAPE (CONT'D)

The Applegate Adaptive Management Area includes other allocations within its boundaries such as Riparian Reserves, Managed Late-Successional Reserves, and two Late-Successional Reserves (see Appendix G, Map 4. Northwest Forest Plan Land Allocations).

GEOLOGY

The Applegate Adaptive Management Area is located in the heart of the Klamath Mountains Physiographic Province, in the Siskiyou Mountains (see Appendix G, Map 5. Physiographic Provinces of the Northwest). As a result, the conditions and processes within the Applegate Adaptive Management Area directly affect the health of the province and indirectly affect the long-term health of the Pacific Northwest region.

The area's geologic history dates back to approximately 150 million years. About fourteen million years ago, the area around the Applegate River watershed began uplifting, centering under Condrey Mountain. Since then it has been uplifted an estimated 23,000 feet. With this great rise, the mountaintops have eroded away, depositing sediment and creating the broad, relatively flat valley bottoms seen in the lower sections of the watershed. This uplift is thought to continue today, though at a much slower rate. Numerous rock types exist in the area, including limestone, marble, granite, mica schist, and serpentine. Resulting soils are varied from coarse-grain sandy to silty soils and from nutrient-rich to calcium-deficient soils. This soil diversity contributes to the high diversity of vegetation and animals in the area.

During past climatic changes, the Klamath Province provided a geologic "bridge" that still functions today for plant and animal migration in all directions. The Klamath Province's Siskiyou mountains are east-west in direction, "bridging" the north-south Cascades and Coastal ranges. The Klamath River provides a "corridor" originating in the Great Basin and flowing west to the Pacific Ocean through the province. As a result of these intersections, the Klamath Province is one of the most biologically diverse areas within North America, and certainly the most diverse in the western United States (Atzet, 1995).

VEGETATION AND FIRE

Natural disturbances like fire, insects, and diseases maintain diversity essential for ecosystem health. Fire is the major natural disturbance agent affecting the Applegate Adaptive Management Area (Whittaker, 1960; Agee, 1993). According to Agee, the current absence of fire within the Applegate River Watershed since 1920 marks the longest fire-free period in the history of the Adaptive Management Area over the last 300 years. Fire frequency in the Applegate River Watershed in the lower elevations (below 3500 feet) is estimated to have been once every 7-20 years (Atzet, 1996).

This area is known for its botanical diversity, attracting visitors from around the world. Over 100 plant species considered rare are found in the Applegate Adaptive Management Area. Of those, 39 are considered at high risk of extinction from the watershed in the foreseeable future (*USDA and USDI, 1995*).

VEGETATION AND FIRE (CONT'D)

Many native plant communities, such as the oak-woodlands, are disappearing due to spread of aggressive non-native species, fire suppression, logging, and other causes. Soil erosion and compaction have lessened the productivity of some areas.

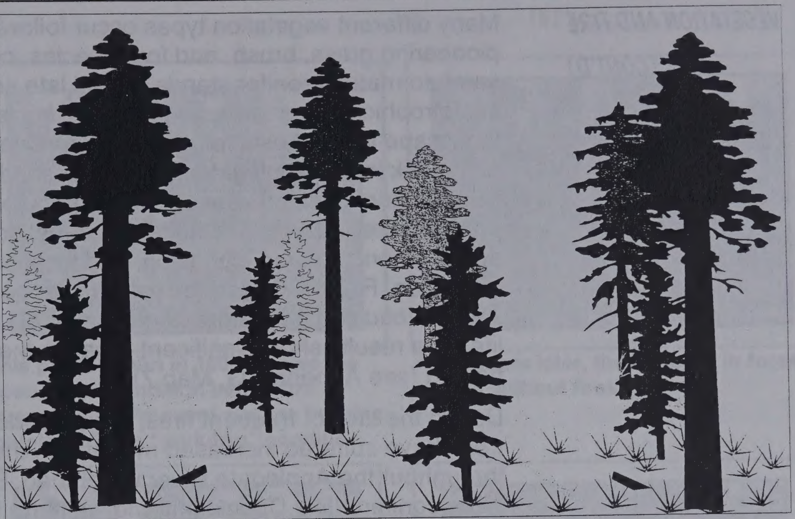
Many kinds of native vegetation are also valued for ornamental, medicinal, and other uses; these include beargrass, mushrooms, cedar boughs, St. John's Wort, and tree burls to name a few. Illegal collection of some of these products creates both an administrative and environmental challenge.

The biological diversity is seen in the numerous types of conifers and hardwoods, as well as unique plant habitats and species. The wide range of trees includes western hemlock, the locally rare Alaska yellow cedar, and Baker's cypress–all of which are remnants of the Ice Age. There was also a hot period (known as the xerothermic era) which left species such as the ponderosa pine and madrone. Over twenty-one species of trees in the Applegate Adaptive Management Area have commercial value. Port Orford cedar is a highly vulnerable species due to increasing infection of *Phytophtera lateralis*, a fungal disease.

Fire profoundly influenced upland systems and was used extensively by Native Americans and Euroamerican settlers until fire suppression began in the early 1900s. The lack of frequent, low-intensity fire in recent history has changed the landscape. Formerly, stands of widely-spaced large trees, such as pine and Douglas-fir, were common in the lower elevations (see Figure 3). Grass or light underbrush was often found under the large trees. Records from General Land Office surveys in the late 1800s describe the lower elevation slopes generally as "open ridges" or "rolling, open, timber: pine and oak, undergrowth manzanita and chapparal" (LaLande, 1995). Notes indicate that mid-upper elevations consisted of mature "old-growth" pine and fir stands, remnant oak and cedar openings, brushfields, and numerous patches of young seedlings. The highest elevations were commonly described as a mosaic of native grass and stands of true fir.

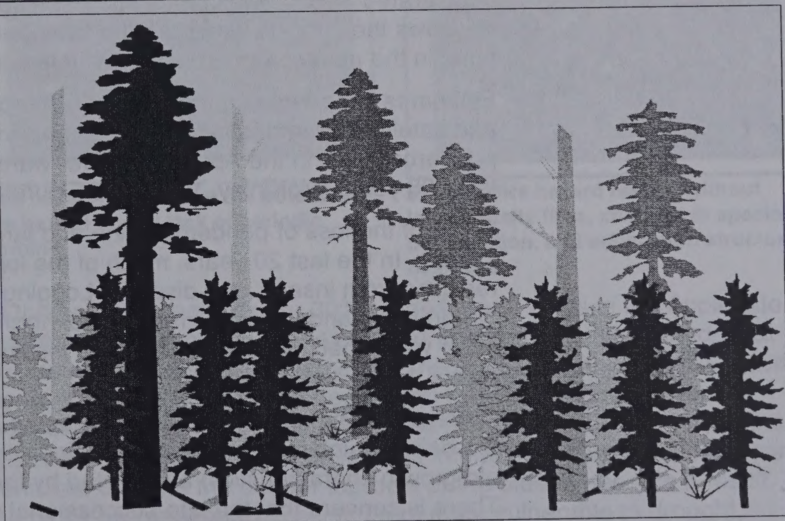
Currently much of the Applegate River watershed is characterized by dense groups of small trees that are less fire-tolerant than the stands of widely-spaced large thick-barked trees, that were more common prior to fire suppression (see Figure 4). When the number of trees occupying a site is greater than the site's ability to provide water and nutrients, that stand is considered "overstocked." Plant pathologists estimate that many of these existing dense stands have far more trees than is optimal–two-to-five times the density that is considered sustainable over the long term. (*Applegate Adaptive Management Area Ecosystem Health Assessment*, 1994.)

FIGURE 3.



Open stands before fire suppression (P. Hosten, 1996)

FIGURE 4.



Dense stand due to lack of fire (P. Hosten, 1996)

Any wildfire that occurs within these dense thickets of small trees during the summer or early fall months is expected to burn intensely and destroy the stands of both large and small trees. These intense fires are often called "stand-replacing" or "catastrophic" fires.

Before fire-suppression, wildfires likely created a mosaic of differing age classes and differing burn intensities, killing some trees while not affecting others. This type of burn results in a higher level of vegetative diversity characterized as "seral stages."

VEGETATION AND FIRE (CONT'D)

Many different vegetation types occur following frequent fires, from pioneering grass, brush, and forb species, considered as early (young) seral, to mature conifer stands, called late seral. The probability of a catastrophic landscape-level fire occurring is reduced when the landscape is composed of many different seral stages. An assessment of fire risk in the Applegate River Watershed was completed in 1996 using factors such as vegetation, slope, aspect, and elevation to predict potential fire hazard. Fire hazard is a fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition. Fire risk is defined as the chance of various potential ignition sources causing a fire, threatening valuable resources, property, and life. The results show significant areas in the Applegate with high fire hazard (see Appendix G, Map 7).

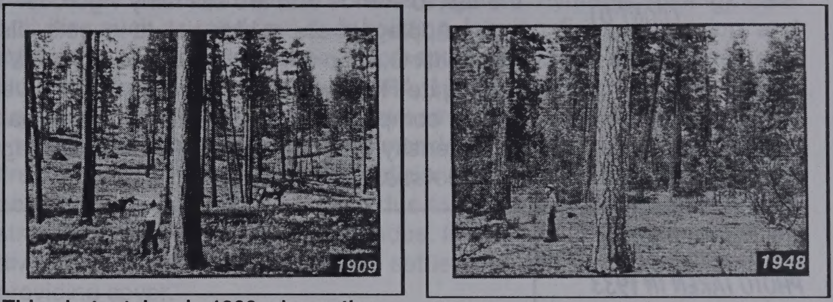
Due to the lack of frequent fires, large ponderosa pine and sugar pine trees have suffered increased mortality in these overstocked stands throughout the Applegate River watershed. Brush, hardwoods, and other conifers (like Douglas-fir and white fir) have increased in density due to decades of fires suppression. The recent drought (1983-1995) accelerated the decline in tree vigor. The series of photographs in Figure 5, shows the succession or gradual changes in forest condition over time, in the absence of periodic, low-intensity fires.

Estimates based on comparisons of historical surveys, aerial photos, and satellite information indicate that approximately 75% of the ponderosa pine in the Applegate River watershed has been lost in the last 100 years (McKinley, 1995, see Figures 6 and 7).

Some of the loss of ponderosa pine and larger firs is due to past logging. In the last 20 years, much of the loss is due to mortality resulting from insects and disease. Logging also removed many of the old-growth stands from the moist, cool north slopes in the Applegate River watershed. This has resulted in less habitat for many species of plants, birds, and animals.

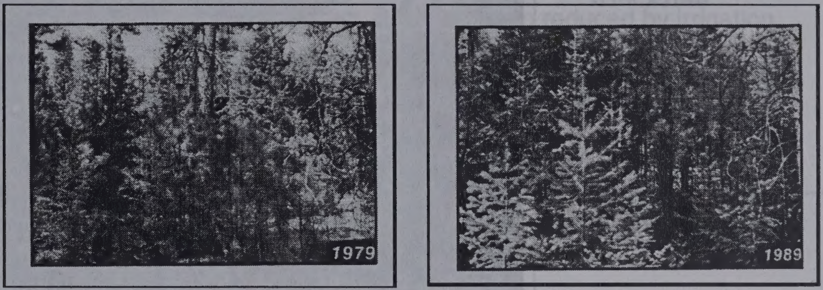
Currently, many areas within the Applegate Adaptive Management Area are being maintained as late-successional habitat (having mature and old-growth characteristics) as directed by the Northwest Forest Plan. There is concern that the late-successional reserves located on the south and west aspects of land in the Applegate River watershed are not sustainable over time die to the high risk of fire. There is a need to develop late-successional habitat on sites with a north aspect where chances for longevity are improved.

FIGURE 5.
THIS SERIES OF FOUR PHOTOS WAS TAKEN FROM THE SAME LOCATION AND ANGLE.
(USDA FOREST SERVICE, 1996)



This photo, taken in 1909, shows the open forest condition before fire suppression. Frequent surface burning maintained this "park-like" condition.

Forty years later, the increase in forest density without fires.



This 1979 photo shows the potential fire hazard due to lack of periodic burning.

Extreme fire hazard results without low-intensity fires, changes in species composition, and ecosystem structure over time.

At the present time, close to 30% of the federal lands in the Applegate Adaptive Management Area is covered with dense conifer stands that are less than 11 inches in diameter. These dense stands of pole-sized trees are very susceptible to destruction by wildfires of any intensity level. Typically, the dense smaller trees have most of their roots in the upper 8-10 inches of soil. These roots intercept the water before it can percolate down to the deeper taproots of the older pines. As a result, the pines are weakened, making them more vulnerable to drought, insects, disease, and wildfire. Reproduction of pines is also inhibited because the dense trees shade out young pine seedlings.

Diseases play an important role in the forests by creating dead trees beneficial for wildlife (such as bats and woodpeckers) and sources of coarse woody material on the ground. Douglas-fir trees that become infected with dwarf mistletoe grow abnormally bunchy branches, called "witches' brooms." Nearly 80% of the spotted owl nests in the Applegate Adaptive Management Area are in "brooms" of infected Douglas-fir (Mamone, 1996).

VEGETATION AND FIRE (CONT'D)

Heavy insect populations found in areas that are overstocked increase the risk to stands that are still fairly vigorous. Most of the stands of trees in the Applegate are at high risk to insects, disease, or wildfire (see Appendix G, Map 6. Risk of Decline in Tree Vigor). Much of the Applegate River watershed needs a shift in vegetation to lower-stocked stands composed of large dominant trees that can withstand periodic low-intensity fires (*Applegate Adaptive Management Area Ecosystem Health Assessment*, 1994).

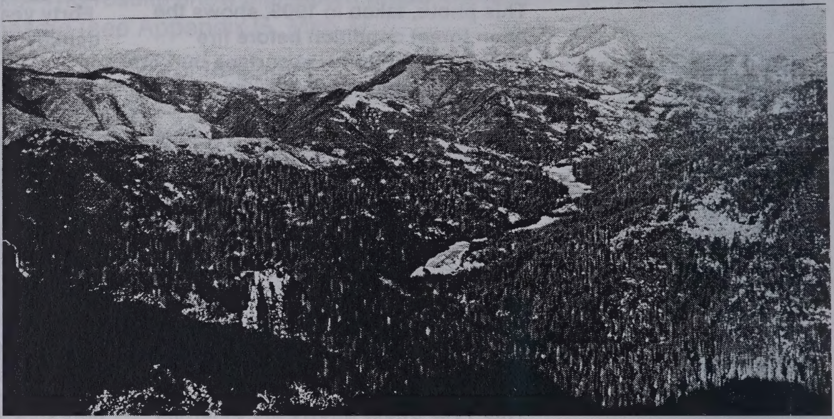


FIGURE 6. PHOTO TAKEN IN 1933 FROM STEVE PEAK IN THE APPLEGATE RIVER WATERSHED

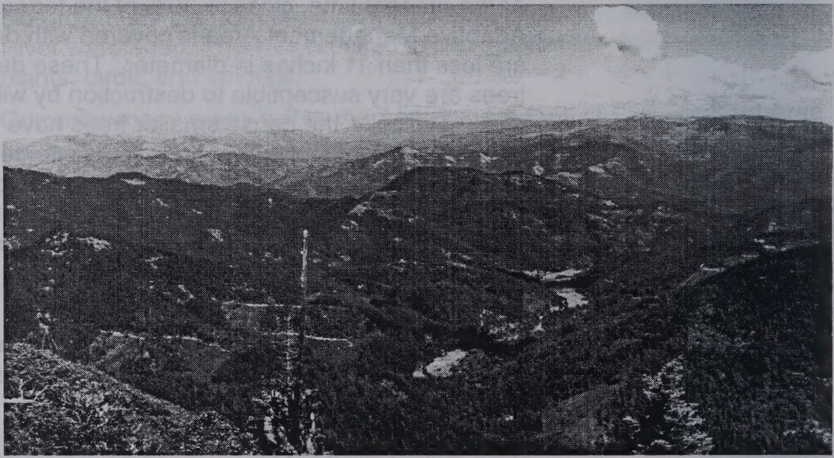


FIGURE 7. PHOTO TAKEN IN 1995 FROM STEVE PEAK. VEGETATION CHANGES, SUCH AS INCREASED DENSITY OF YOUNGER SMALLER TREES AND CLEARCUTS, ARE VISIBLE.

STREAM AREAS AND WILDLIFE

Hydraulic mining in the last century dramatically altered the Applegate River watershed's streams and rivers (Figure 8, hydraulic mining). Later activities such as road and dam building, logging, fire suppression, and agricultural and residential development also affected stream systems. Dramatic floods, as occurred in 1964, 1974, and 1997, rearranged aquatic areas. Many areas along streams contain dense stands of young trees with low vigor. These stands are at high risk of insect and fire mortality. Many streams are deficient in large wood which is necessary for healthy fish habitat due to removal of trees adjacent to streams over the last several decades. In many cases, streams are less diverse than before Euroamerican settlement with fewer large trees providing cover.

Many streams now lack both nutrients and shade. Compared to pre-settlement conditions, channels are less stable and water temperatures are generally higher. There are fewer pools than was the case before the area was settled, and stream flow has been reduced by irrigation withdrawals and other factors. The width of riparian vegetation is narrowing as humans clear land in what was once an area of periodic flooding. Non-native species, such as Himalayan blackberry, occupy much of this area.

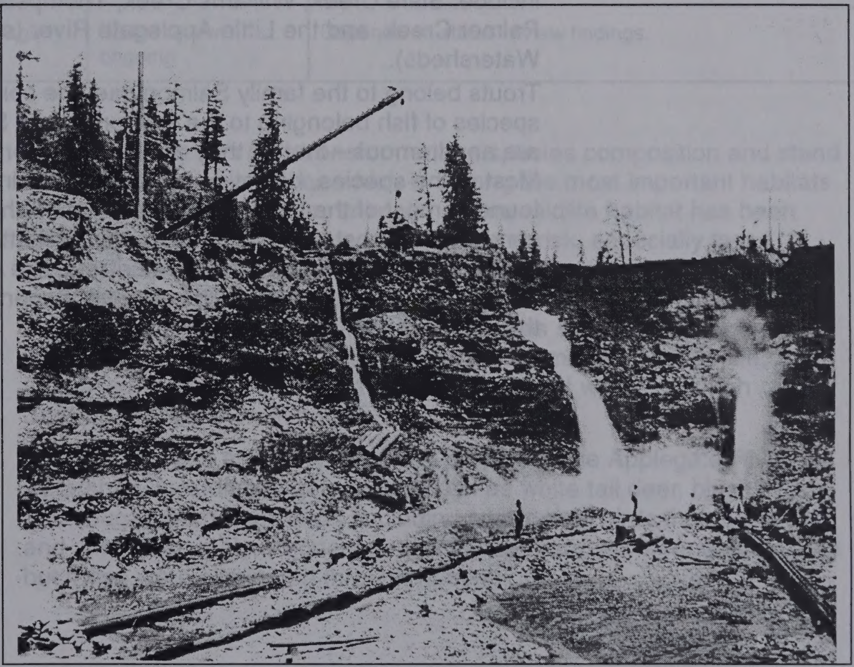


FIGURE 8. HYDRAULIC MINING, STERLING CREEK, 1910 (FROM ROGUE RIVER NATIONAL FOREST ARCHIVES, RRNF#V-2-25.15)

STREAM AREAS AND WILDLIFE (CONT'D)

Numerous springs, seeps, wet mountain slopes and moist mountain meadows exist in the uplands. Some of these are quite pristine, but most are highly altered (especially by past grazing and logging), reducing their potential for providing wildlife habitat.

The variety of fish in the Applegate includes: coho salmon, fall chinook salmon, summer and winter steelhead (the anadromous form of rainbow trout), and resident Rainbow and cutthroat trout. A major issue is the future health and survival of anadromous fish within the basin. (Anadramous–fish swimming from the sea into streams and rivers to spawn.) The Rogue River is considered one of the two highest priority anadromous systems in Oregon (Applegate Adaptive Management Area: Aquatic, Plant, and Special Habitat Assessment, 1995). Coho salmon is listed as threatened and steelhead trout as well as chinook salmon are proposed as threatened status under the Endangered Species Act (see Table 1, Status of Fish).

Although the Applegate River watershed is only about twelve percent of the total acreage in the Rogue River watershed, it provides spawning habitat for an estimated one-third of all the coho salmon coming up into the Rogue River. Critical watersheds for anadromous fish populations include: Slate Creek, Williams Creek, Thompson Creek, Beaver Creek, Palmer Creek, and the Little Applegate River (see Figure 10, Critical Watersheds).

Trouts belong to the family Salmonidae, the common name for many species of fish belonging to the salmon family. Some, called sea trout, are anadromous—that is, they ascend the rivers from the sea to breed. Most of the species, however, live exclusively in fresh water and are found in most of the lakes and streams of northern regions. Their food consists of almost any sort of fresh animal matter, such as smaller fishes, crustacea, and insect larvae. Trout, like salmon, spawn during the spring or occasionally in the autumn, depending on the latitude and the species.

STATUS OF MAJOR FISH SPECIES IN THE APPLEGATE RIVER WATERSHED RESULTING FROM THE ENDANGERED SPECIES ACT

TABLE 1.

Fish Species	Current Status	Date of Proposal Status Outcome and Dates
coho salmon: southern Oregon/northern California (SO/NC) ESU	Threatened	7/25/95 **Listed as Threatened** on 5/6/97. Final critical habitat designations to be completed by October, 1998.
steelhead: (the anadromous form of rainbow trout) Klamath Mountains Province ESU	Proposed for Threatened status	3/16/95 Not listed. **Designated a Candidate Species** in March 1998. Status to be reconsidered in 1999 when NMFS reviews the Governor's Salmon Plan for effectiveness. Final listing determinations and critical habitat designations to be completed by March, 1999.
chinook salmon: southern Oregon/California coastal ESU (includes Rogue Basin fall and spring runs, not the Umpqua).	Proposed for Threatened status	2/27/98 Final listing determinations and critical habitat designations to be completed by March, 1999.
cutthroat trout: resident, Oregon Coast ESU	Status review ongoing	Depends on status review findings.

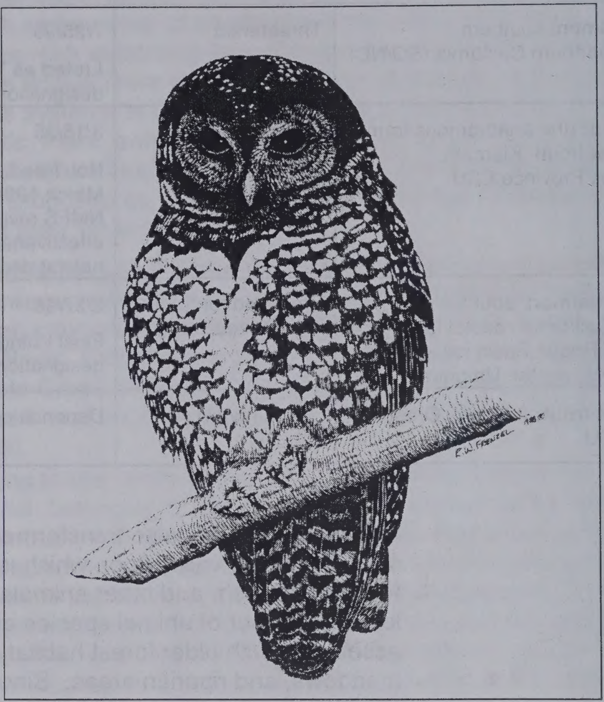
Human activity has also transformed the species composition and stand structure of the valley floor, which is among the most important habitats for humans, fish, and other animals. Some wildlife habitat has been lost. A number of animal species are now at risk, especially those associated with older forest habitat, oak-woodlands, moist mountain meadows, and riparian areas. Since riparian areas have changed significantly over the years, habitat for species such as beaver and fish is reduced, with fewer areas for uninterrupted migration available. Increased road densities impact most species of wildlife through disturbance and increased poaching.

A broad range of animal species are present in the Applegate River watershed–including large animals such as white tail deer, black bear, and cougar; numerous birds (including neotropical birds that migrate); and small mammals. At one time, grizzly bear and elk were also present but these were eliminated through hunting.

STREAM AREAS AND WILDLIFE (CONT'D)

Scores of sensitive vertebrates and invertebrates are found here such as bald eagle, Siskiyou salamander, Del Norte salamander, northern spotted owl (Figure 9.), Townsend's big-eared bat, California tree vole, fisher, California wolverine, and Siskiyou caddisfly to name a few (*USDA and USDI, 1995*). The Applegate Adaptive Management Area also has the highest density of known nests of the northern spotted owl of any Adaptive Management Area.

FIGURE 9. NORTHERN SPOTTED OWL



The welfare of spotted owls (Strix occidentalis caurina) is believed to inextricably tied to the health of mature and old growth forests.

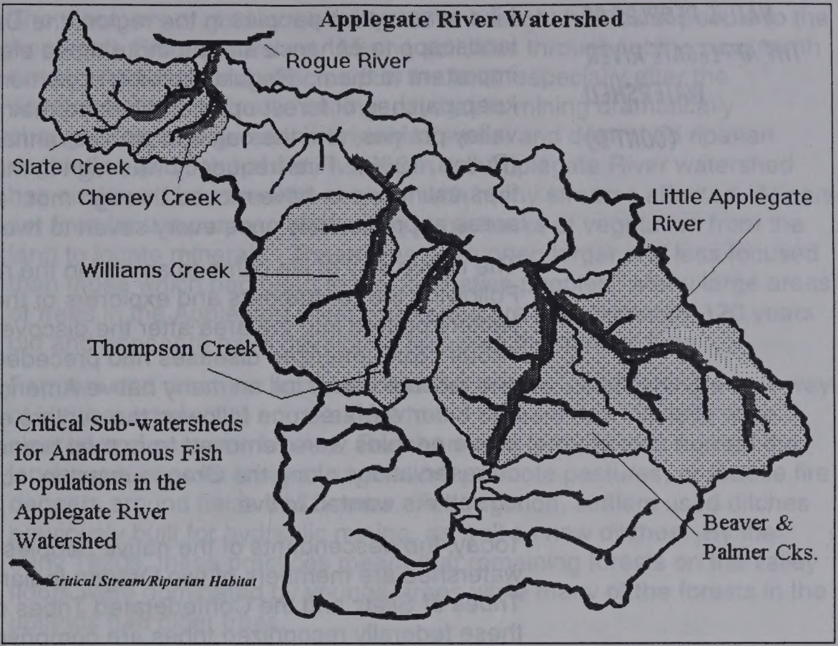

Applegate River Watershed
Rogue River
Slate Creek
Cheney Creek
Little Applegate River
Williams Creek
Thompson Creek
Critical Sub-watersheds for Anadromous Fish Populations in the Applegate River Watershed
Beaver & Palmer Cks.
Critical Stream/Riparian Habitat

FIGURE 10. CRITICAL WATERSHEDS IN THE APPLEGATE RIVER WATERSHED (USDA AND USDI, 1995)

NATIVE PEOPLES OF THE APPLEGATE RIVER WATERSHED

Numerous tribes lived in the Applegate River watershed before European contact. The earliest human presence in the Applegate is unknown, but recovered projectile points indicate that small populations of Paleo-Indian hunters had arrived in the Siskiyou Mountains by about 11,000 years ago (LaLande, 1995). Many of the people who inhabited the Applegate River watershed at the time of contact with Euroamericans were known as the Dakubetede (or Applegate Athapascans). They shared this area with the Takelma (or Latgawa); the Takelma are thought to have settled in the area earlier and controlled most of the main stem of the Rogue River (Pullen, 1995). The high mountain areas of Red Buttes and Dutchman Peak were shared with the Karok and Shasta Indians, respectively. These groups all followed a similar way of life closely adapted to the landscape and an integral part of it.

The Dakubetede lived in winter villages scattered along the lower Applegate River and its main tributaries, but used all areas of the watershed to obtain food and materials. Fishing, hunting, and gathering of edible plants were the primary means of providing food. Extensive trading took place in the later periods with groups living along the southern Oregon coast, in central Oregon, and in northern California.

NATIVE PEOPLES OF THE APPLEGATE RIVER WATERSHED (CONT'D)

Like other native peoples in the region, the Dakubetede managed the landscape to enhance and promote those elements which were important to them. Regular burning of portions of the landscape helped keep patches of forest open and helped maintain upland meadows, valley prairies, and the oak and pine savannas of the hills and valleys (Pullen, 1996). Fire frequency was high in much of the watershed, with fires estimated to have moved through most areas in the lower elevation areas approximately once every seven to twenty years (Atzet, 1993).

The native way of life came to an end in the nineteenth century. Following the fur-trappers and explorers of the 1820-30s, miners and settlers poured into the area after the discovery of gold in the early 1850s. Euroamerican diseases had preceded the settlers themselves and taken a heavy toll on many native American communities. Bloody and bitter warfare soon followed the settlers and most of the surviving native peoples were removed from their homeland. They were placed on reservations along the Oregon coast in locations where, at the time, no settlers wanted to live.

Today, the descendants of the native peoples of the Applegate River watershed are members of two Oregon Indian tribes: the Confederated Tribes of Siletz and the Confederated Tribes of Grande Ronde. Both of these federally recognized tribes are comprised of peoples from diverse aboriginal groups from western Oregon. These groups also suffered tragically through the difficulties of the reservation period and the allotment policies of the nineteenth and early twentieth centuries. Their reservation rights were terminated and they lost their land and assets. Finally there was a re-instatement of reservation rights in the latter half of this century.

Throughout this difficult history, the native peoples of western Oregon have maintained their aboriginal identities and many of their cultural traditions. Indian populations in the 1990's have rebounded from the extreme lows of a hundred years ago, and tribal rolls continue to grow. Members of both the Siletz and Grande Ronde tribes are today actively involved in numerous issues of importance in their aboriginal territories. Their interest and presence in the affairs of the Applegate Adaptive Management Area may be expected to grow in the coming years.

EUROAMERICAN SETTLEMENT TO PRESENT

The first non-indigenous people known to visit the area were the fur trappers with the British Hudson's Bay Company in 1827 (LaLande, 1995). These trappers came to eliminate the fur-bearing animals of the region (especially beaver) to weaken their French competitors and continued their activities through the 1840's. Explorers entered the region during this period as well, mapping its topography and providing brief descriptions of the landscape.

EUROAMERICAN SETTLEMENT TO PRESENT (CONT'D)

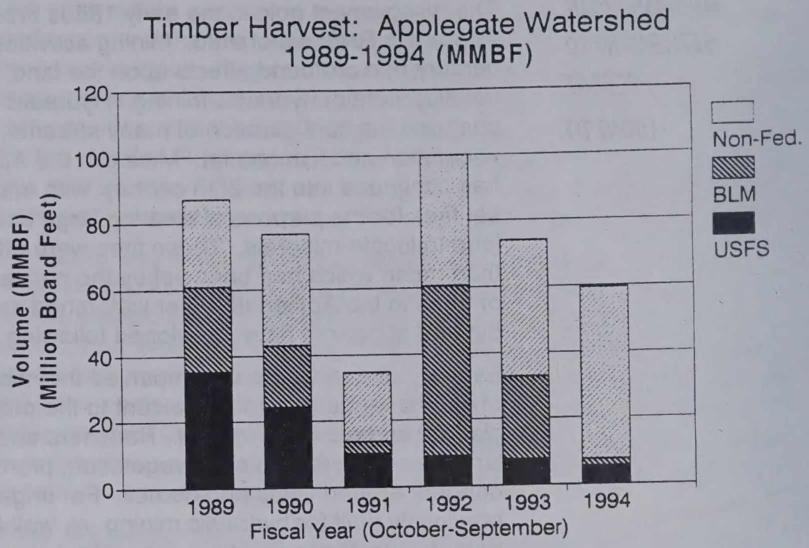
The discovery of gold in the early 1850s brought hoards of people to the Applegate River watershed. Mining activities throughout the nineteenth century had profound effects upon the land, especially after the development of hydraulic mining. Hydraulic mining dramatically changed the configuration of many streams, and destroyed riparian vegetation and fish habitat. Mining in the Applegate River watershed has continued into the 20th century, with many streams affected. Miners set fires for the purpose of clearing large tracks of vegetation from the land to locate minerals. These fires were often larger and less focused than those which had been set by the native peoples. Many large areas of trees in the Applegate River watershed are approximately 120 years old and appear to have developed following the miners' fires.

Farmers and ranchers accompanied the miners, establishing a new way of life that endures to some extent to the present day. Valleys were cleared and pastures fenced. Ranchers and farmers also burned the landscape, in order to clear vegetation, promote pastures, or reduce fire dangers around fields and homes. For irrigation, settlers used ditches previously built for hydraulic mining, as well as new ditches. By the early 1920s, these practices meant that remaining forests on the valley floors were dominated by younger trees while many of the forests in the uplands had older trees.

Following the Great Depression, World War II brought renewed demand for natural resources, especially timber and minerals. The post-war building boom greatly increased the demand for timber.

Before the war, timber was harvested in scattered areas using selective logging; after the war, practices shifted to clear-cut and shelterwood harvests, accessed by numerous new roads. Since 1988, logging has dramatically decreased on federal lands while it has increased on private lands (see Figure 11, Timber Harvest in the Applegate River Watershed). Since the Northwest Forest Plan, there has been an increase in timber sales purchased on federal lands, but that information is not reflected in that figure.

FIGURE 11. TIMBER HARVEST IN THE APPLEGATE RIVER WATERSHED, 1989-1994 (FROM ANALYSIS OF DEMOGRAPHIC AND ECONOMIC ASPECTS OF THE APPLEGATE RIVER WATERSHED, SOUTHERN OREGON REGIONAL SERVICES INSTITUTE, 1996)



The advent of federal land management policies beginning at the turn of the century has had major effects on the landscape in the Applegate River watershed. Fire suppression, instituted early in this century, has significantly changed the composition and structure of vegetation across the landscape. Effects of fire exclusion for 80-90 years are evident Many areas have dense, continuous vegetation and tree vigor is declining as a result of overcrowding. Rural homes have been built on many sites surrounded by brushy fields.

Numerous trees, along with large buildups of fuel (i.e., dead limbs, debris on the ground, as well as standing dead trees) from insect mortality, have greatly increased the risk of a large intense fire that would kill most standing trees. Such a fire is called a "stand replacement fire." The risk of fires is compounded by a greatly increased number of "rural" residences throughout the watershed (many are situated at the non-forest/ forest "interface"). Not all areas in the watershed are considered "high fire risk or high fire hazard" and not all high risk areas will burn soon. It means the potential for fire is high, the values at stake are high, and the difficulty in putting out a fire during most summers is also high. The watershed also has a history of large lightning-caused fires such as occurred most recently in 1985, 1987, and 1994.

Ever-growing human activities and demands, especially in the latter part of this century, have increased the pressure on the ecosystem to provide clean water, increased water supply, forest products, game and other wildlife, as well as adequate habitat for the total diversity of life, including humans.

CURRENT SOCIAL AND ECONOMIC SETTING

This section describes the social and economic forces which are present in the Applegate Valley with the intention of providing an understanding of the people and communities most closely associated with the Applegate Adaptive Management Area. Additionally, information is given about the social transitions of the larger two-county region, which provides Applegate residents many social and economic opportunities and services. This section also describes the community dynamic affecting public interaction in federal forest management and planning, which provides the impetus for groups such as the Applegate Partnership to act as agents of change.

This description is based on quantitative and qualitative data provided by a number of reports initiated by federal land management agencies, non-profit partners, and the communities within the Adaptive Management Area.

In 1994 local federal agencies, the Applegate Partnership and the Rogue Institute of Ecology and Economy jointly initiated a community assessment study to better understand the current residents and communities living within the Applegate watershed. The cooperative effort was made possible by assistance of Southern Oregon University and funding from Bureau of Land Management, the Forest Service and the Oregon Community Foundation. This document, "Words into Action: A Community Assessment of the Applegate Valley," provides information about socio-demographics, networks, values, needs, and desires of the residents in the valley. It also suggests options for effective interaction between agency personnel and local residents.

Victoria E. Sturtevant and Jonathan I. Lange, professors of sociology and communication, respectively, at Southern Oregon University, prepared the “Applegate Partnership Case Study: Group Dynamics and Community Context” in 1995. This report describes the community context and group dynamics of the Partnership in order to identify attributes significant to its inception and success. Its description of various dimensions of the Applegate community provides an understanding of socio-demographic transitions and building of social capacity in the Valley. The study also provides information about the role of the Applegate Partnership in ecosystem management as well as the interaction of the Partnership with the federal land management agencies.

A similar cooperative venture between the Southern Oregon Regional Services Institute at Southern Oregon University, the Bureau of Land Management and Forest Service resulted in “Analysis of Demographic and Economic Aspects of the Applegate Watershed” in 1996 that further analyzes the demographics and economic aspects of the Applegate watershed. This study documents characteristics of watershed residents, particularly economic characteristics, and profiles economic activity of area businesses. This economic assessment can be seen as a companion report to the community assessment.

CURRENT SOCIAL AND ECONOMIC SETTING (CONT'D)

The Rogue Institute for Ecology and Economy, supported by a grant from the Forest Service Rural Community Assistance program, conducted strategic planning in the Applegate Valley. Through the strategic planning process, communities in the valley were able to identify a "vision" of a desired future for the area, and develop strategies and actions to achieve this future. The "Applegate Valley Strategic Plan" was finalized in July of 1997.

PHYSICAL SETTING

The Applegate Watershed is located primarily in the southwestern Oregon counties of Jackson and Josephine. It is defined by the watershed of the Applegate River, which begins in a sparsely populated area of Siskiyou County, California, and flows through Jackson and Josephine counties and into the Rogue River west of Grants Pass.

The watershed mainly encompasses rural areas southwest of the city of Medford and southeast of Grants Pass, although the southern part of the Grants Pass urban area also falls within the watershed. The population is concentrated along Highway 238 and in the unincorporated communities of Applegate, McKee Bridge, Murphy, Provolt, Ruch, Wilderville, Wonder, and Williams.

The Applegate River watershed's 500,000 acres includes residential lots, small woodland and hobby farms, industrial forests, and federal lands which form a patchwork of legal entities defining diverse individual, group and organizational interests in an acknowledged and valued geographical area. Lowlands and riverbeds in the watershed provide for farming, ranching and residences; forested highlands provide timber and other forest products, recreation, and grazing.

INFRASTRUCTURE

Since there are no incorporated towns, there are no elected local offices in the Applegate, although Williams maintains a town council. There are two Community Advisory Committees, one in each of the Applegate portions of Jackson and Josephine counties. Therefore, local infrastructure is limited to the United States Department of Agriculture Forest Service ranger station, United States Department of the Interior Bureau of Land Management nursery near Provolt, post offices (3), fire departments (5 rural stations), schools (6 elementary, 1 middle school, 1 high school, and 1 alternative school) and churches (7).

Some services are either currently available or soon to be delivered through satellite offices of nearby centers; however, some of these (e.g., the sheriff's outpost) are regarded by (some) residents as unwarranted intrusions into community self-reliance or easily accessible by car in the nearby cities. Residents either secure most services outside the local area or make do with the limited local services and informal means to care for one another (Preister, 1994).

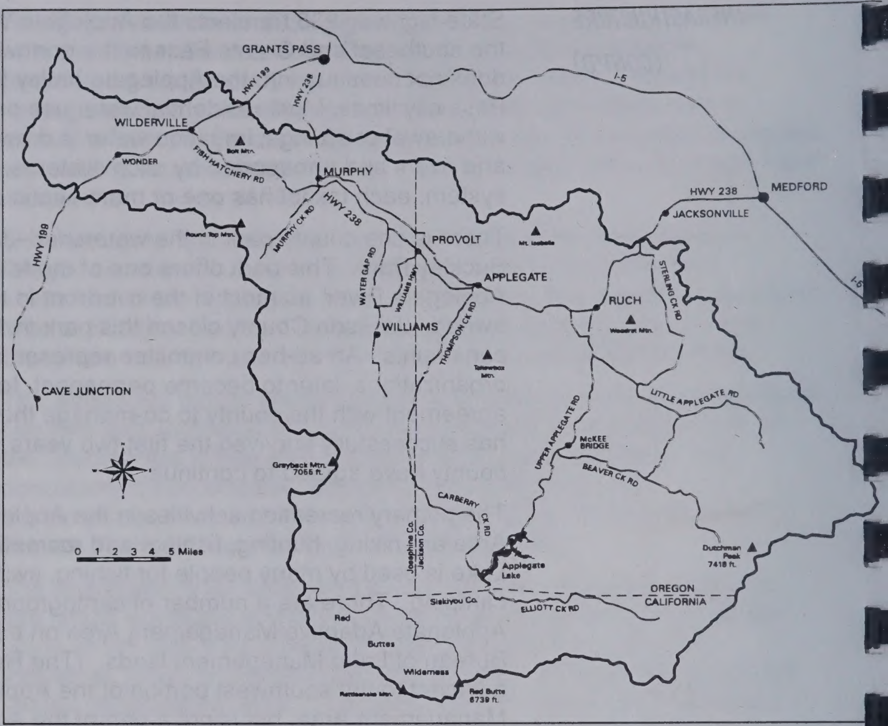
INFRASTRUCTURE (CONT'D)

State highway 238 transects the Applegate Valley, linking Jacksonville to the southeast and Grants Pass to the northwest. Public transportation does not continue into the Applegate Valley from Medford or Grants Pass city limits. Most residential water use originates from groundwater withdrawal or springs; irrigation water is drawn from creeks, streams, and rivers and transported by ditch systems. There is no sewer disposal system; each tax lot has one or more septic systems.

There is one county park in the watershed–Jackson County's Cantrall-Buckley Park. This park offers one of the few public accesses to the Applegate River, as most of the riverfront in the valley is privately owned. Jackson County closed this park in 1996 as a result of budget constraints. An ad-hoc committee representing local community organizations, later to become permanent, formed to develop an agreement with the county to co-manage the park. This arrangement has successfully survived the first two years, and the community and the county have agreed to continue.

The primary recreation activities in the Applegate Adaptive Management Area are hiking, hunting, fishing, and recreational driving. Applegate Lake is used by many people for fishing, swimming, picnics, and camping. There are a number of campgrounds and trails throughout the Applegate Adaptive Management Area on both Forest Service and Bureau of Land Management lands. (The Red Buttes Wilderness is adjacent to the southwest portion of the Applegate Adaptive Management Area, but is not a part of the Adaptive Management Area.)

FIGURE 12. APPLEGATE WATERSHED WITH ROADS AND COUNTY BOUNDARIES.


GRANTS PASS
HWY 199
HWY 238
I-5
WILDERVILLE
WONDER
Bolt Mtn.
FISH HATCHERY RD
MURPHY
HWY 238
MURPHY CK RD
Round Top Mtn.
HWY 199
PROVOLT
Mt. Isabelle
APPLEGATE
WATER GAP RD
WILLIAMS HWY
WILLIAMS
THOMPSON CK RD
Tallowbox Mtn.
RUCH
Woodrat Mtn.
STERLING CK RD
HWY 238
MEDFORD
JACKSONVILLE
I-5
CAVE JUNCTION
LITTLE APPLEGATE RD
UPPER APPLEGATE RD
McKEE BRIDGE
BEAVER CK RD
Grayback Mtn. 7055 ft.
CARBERRY CK RD
Josephine Co.
Jackson Co.
0 1 2 3 4 5 Miles
Applegate Lake
Dutchman Peak 7418 ft.
OREGON
CALIFORNIA
Siskiyou Co.
ELLIOTT CK RD
Red
Buttes
Wilderness
Rattlesnake Mtn.
Red Butte 6739 ft.

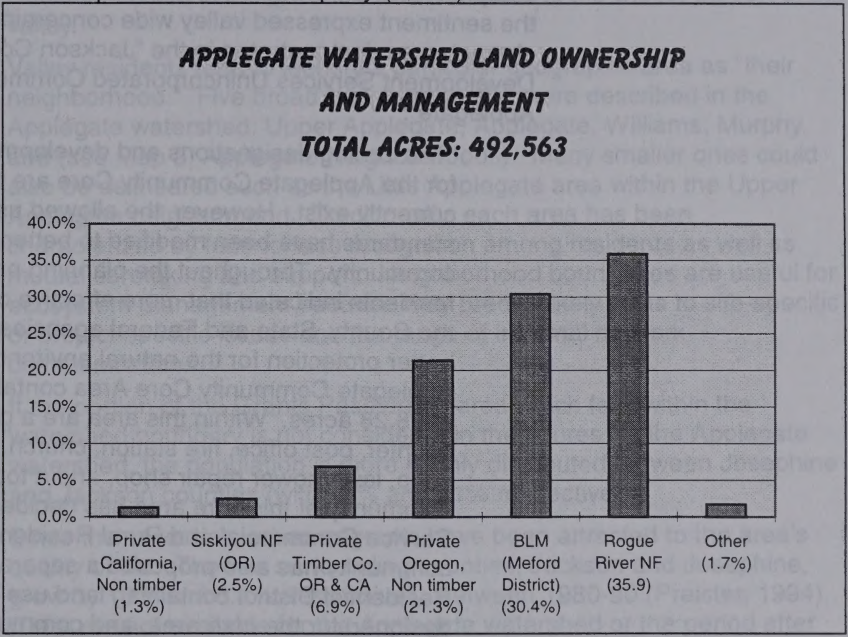
OWNERSHIP

Of the nearly 500,000 acres of the Applegate Watershed, about 31% is privately owned and 69% is in federal and state management (see Figures 1, 12, and 13). Eight percent of the watershed is managed as private industrial timber land (Reid and Young, 1995). Ownership of the remaining privately-held land in the watershed is typically held in relatively small parcel holdings; 74% of all owners hold 23% of the private land in parcels of under 10 acres in size (Reid and Young). A very small portion of land is in Siskiyou County in California. In Oregon privately held acreage is about evenly distributed between the two counties.

Jackson County owners claim fewer and larger lot sizes than owners in Josephine County. Average lot size for the watershed is 18.4 acres, but varies widely between the two counties with the average lot size of 26.6 acres in Jackson County and 13.8 acres in Josephine County. Josephine County's smaller lots have higher assessed valuations because they also have more improvements, such as buildings and other structures. Nearly three out of four structures, mainly residences, are located on the more developed Josephine County lots.

Large land holdings, defined as tax lots larger than 300 acres, are concentrated among 41 owners and account for 37% of all privately held lands. Private timber companies own 28% of the watershed's privately held acreage. Over one-fifth (22%) of all Applegate Watershed private lands is owned by four companies: Boise Cascade (10,948 acres), Medford Corporation/Medite (6,903 acres), Spalding and Son (4,333) and Superior Lumber Company (2,808).

FIGURE 13.



APPLEGATE WATERSHED LAND OWNERSHIP AND MANAGEMENT

TOTAL ACRES: 492,563

ZONING

While each county's zoning and land-division ordinances must meet conditions set forth by the statewide planning goals, the counties may designate zones and districts that have different administrative, permitted, and conditional use allowances (Reid and Young, 1995). Therefore, each county has different requirements on how a parcel of land is used. Currently, 67% of the private land in the watershed is zoned Forest Use, 20% is zoned Farm Use, and 13% is zoned Residential. Only .5% of the total acreage is zoned commercial/industrial. There is no Tourist Commercial zoning in the Applegate. A total of 181 taxlots are zoned Commercial/Industrial, and 563 taxlots are zoned Aggregate Resource, all of these in Josephine County.

In 1994, the Land Conservation and Development Commission adopted the Unincorporated Communities Administrative Rule (Chapter 60 Division 22) which enables counties to define and clarify types of rural uses in unincorporated communities. The rule is intended to recognize and plan for unincorporated communities through a citizen process that adopts a rural unincorporated boundary around existing service areas.

ZONING (CONT'D)

Rogue Valley Council of Governments was contracted by Jackson County to facilitate the planning process in the core communities of Ruch, Applegate, and Wilderville. Josephine County facilitated the planning process for Williams. While this planning is still underway, the core community of Applegate was one of the first of the 11 unincorporated rural communities region wide to participate and complete their planning. The results of the planning process illustrate the sentiment expressed valley wide concerning land use and rural character, as demonstrated in the "Jackson County Planning and Development Services Unincorporated Community Staff Report: Applegate":

> "The zoning designations and development densities proposed for the Applegate Community Core are the same as those that currently exist. However, the allowed uses and the development standards have been modified to better reflect the goals of the community. Throughout the planning process, the Applegate residents indicated that more effective communication between the County, State and Federal agencies was needed to assure better protection for the natural environment. The proposed Applegate Community Core Area contains 15 parcels on a total of 28.28 acres. Within this area are a grocery store/lunch counter, post office, fire station, church, a restaurant & lodge, gift shop, lawnmower repair shop, and a total of 13 dwellings. The community of this core area has decided to include both Rural Service Commercial and Rural Residential Zoning districts. The community has also proposed a separate Applegate Rural Residential District containing land use regulations specifically designed for the core area, and community residents requested that no industrial zoning be applied to the core area. Another separate land development ordinance has been proposed, the Applegate Rural Service Commercial District, which would allow permitted uses, such as schools, cemeteries, fire stations, museums, community kitchens, and a farmers market. These proposed land use ordinance changes include provisions for buffering techniques, limitations on the size and height of new structures, and that all regulating agencies indicate approval of new development by signing off on a checklist designed for each new development proposal (Jackson County Planning and Development Services Unincorporated Community Staff Report: Applegate, 1997).

DEMOGRAPHICS

POPULATION

Approximately 13,000 people live in the Applegate watershed. Of the total Oregon portion of the watershed, 30% live in Jackson County and 70% in Josephine County. Less than 1% live in Siskiyou County, California. Residents settle in the lower elevation areas and the widest portion of the valley.

Valley residents tend to identify a particular geographic area as "their neighborhood." Five broad "neighborhoods" were described in the Applegate watershed: Upper Applegate, Applegate, Williams, Murphy, and (see Map 8. Applegate Neighborhoods). Many smaller ones could also be delineated such as the Little Applegate area within the Upper Applegate neighborhood. Traditionally, each area has been characterized by face-to-face recognition among residents as well as mutual caretaking and support. Neighborhood boundaries are useful for ecosystem management because they predict likely limits to site-specific or project-specific issues and the range of informal network communication.

If the portion of the Grants Pass urban area which falls within the watershed boundary is not considered in the figures for the Applegate watershed, the population is more evenly distributed between Josephine and Jackson counties (with 59% and 41% respectively.)

Since the seventies, urban migrants have been attracted to the area's quality of life. The two surrounding counties, Jackson and Josephine, grew by 10.5 and 6.4%, respectively, between 1980-90 (Preister, 1994). (Data are not available for the Applegate watershed or the period after 1990.) Although in-migration is considerable, it is partially counterbalanced by out-migration. The increase in the retiree population in the watershed parallels that of the two counties. Although there has been a common perception that the numbers of people retiring in the Applegate watershed is far greater than relative numbers retiring in the counties at large, this is not accurate.

AGE DISTRIBUTION

The demographics of the Applegate region closely mirror those of the two-county area. In the Applegate, 25% of the population is 18 years of age or younger, 58% is aged 19-64, and 17% is 65 or older. One difference is that Josephine County as a whole exhibits a larger proportion of retirement age population (21%).

RACE

Table 2 below, illustrates the race distribution for both the Jackson County and Josephine County portions of the Applegate.

TABLE 2. **Applegate Valley Race Distribution**

	Total People	White	Black	Native American/ Eskimo & Aleut	Asian or Pacific Islander	Hispanic of any Race
Jackson Co.	**3832**	**3707**	**5**	**64**	**32**	**94**
Josephine Co.	**9134**	**8969**	**8**	**104**	**36**	**222**
Totals	**12,966**	**12,676**	**13**	**168**	**68**	**316**
Percent	**100%**	**97.8%**	**0.1%**	**1.3%**	**0.5%**	**2.4%**

EDUCATION

Forty-three percent of the Applegate watershed residents over 25 years of age have had college experience of any kind compared to 46% of the residents in the two county region. At the same time, a lower-than-average percentage of Applegate residents drop out of high school before graduating (19%) than the two county region (21%). Although the population has been growing steadily through people moving into the area, school enrollments have remained fairly constant over a long period–reflection of the aging of the valley's residents.

The per capita investment for the Applegate Valley schools within the Three Rivers School District (Josephine County) is $4,420. The per capita investment for the Applegate Valley schools within the Medford District (Jackson County) is $4,731. Both figures represent the1996-97 school year.

HEALTH CARE

Residents must travel outside of the Applegate Valley to meet most health care needs, although a family practitioner has recently opened an office in Ruch. Also in Ruch are a dentist and a chiropractor. Practicing throughout the valley are numerous homeopathic practitioners, massage therapists, and several midwives.

In 1994 the Applegate Health Cooperative, an affiliation of nurses, community residents and others, explored the feasibility of developing a nurse-run primary care clinic in the Valley. A survey commissioned by this groups and conducted by Oregon Health Sciences University found that 38% of the 114 respondents perceived a definite need for local health care services and 37% said probably there was a need.

HEALTH CARE (CONT'D)

Yet this survey also found that most respondents found the average 24-29 miles driven (taking 30-60 minutes) to a facility was not unreasonable and they could not suggest a location more convenient for all residents given the length of the valley and availability of health care in major cities at both ends of the Valley. Of those surveyed, 58% seek health care in Medford, 22% in Grants Pass and 9% in Ashland. Unmet health care needs included senior health care, well child care, ambulatory and urgent care, and low cost health services.

The lack of agreement over location of a clinic and the general satisfaction with current services contributed to the Cooperative's decision to not establish a nurse care clinic at this time. Instead they offered their expertise in support of any grass roots effort that the community pursued.

HOUSING

New home construction in the Applegate watershed also parallels the population increase in Jackson and Josephine counties. Of all housing units in the watershed, 21% have been constructed since 1979, compared to 20% for Jackson and Josephine counties combined. Other housing information shows differences between Applegate residents and residents of the two county region. There is a larger percentage of recreational housing ("secondary" homes used for the purposes of recreation rather than used as primary residences) in the watershed (2%) than exists in the two counties as a whole (1%).

Owner occupancy is also much greater (83% of all housing units compared to 68% for Jackson and Josephine counties combined). Finally, 31% of all housing units are classified as mobile homes as compared to 20% for the two-county area. Average home values are 11% higher in the Applegate Watershed ($98,598) than in the two county region ($89,133). This includes the larger percentage of mobile homes mentioned above; thus, the values of the non-mobile homes vary even more. The difference becomes much greater if the portion of the Applegate which is within the Grants Pass urban area is removed: the average home value then becomes $103,184.

Of Applegate households, 67% have moved into their current residence since 1980. This compares to 70% in the two county region, and indicates that Applegate residents are slightly less mobile than residents of the larger area.

ECONOMIC SETTING

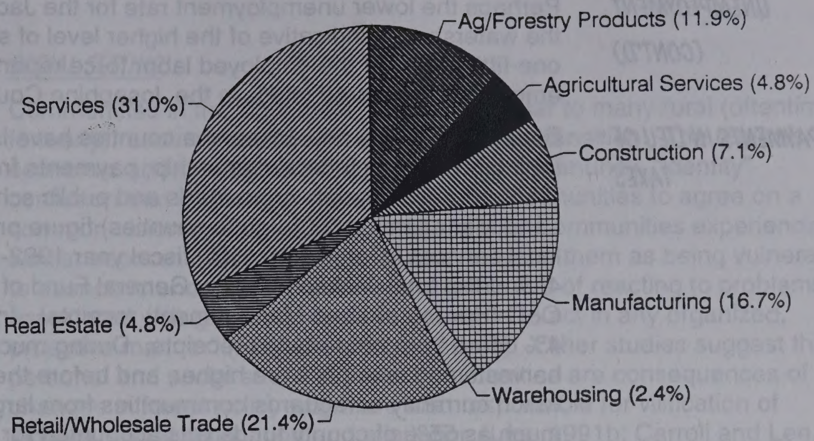
EMPLOYMENT

Traditionally, the region's economy has primarily relied on timber-rated economic activity on public lands. As the lumber and wood products industry has declined in recent years, the economy of the watershed has changed with newer residents having economic ties outside the area, new economic activities cropping up within the region, and even longtime residents commuting to nearby areas for work. Employment based on logging and woods products manufacturing has declined steadily, while trade and services employment registered sizable increases, accounting for 90% of the growth in non-manufacturing jobs in the two counties (Oregon Employment Division, 1992). These trends are expected to continue past the year 2000.

A higher-than-average-proportion of residents work in a neighboring county or work outside of Oregon altogether. Compared to the overall two-county area, the Applegate watershed has a lower amount of construction and real estate employment, and a higher amount of services, retail and wholesale trade, agricultural products/ services, manufacturing, and warehousing employment (see Figure 14, Industrial Sectors of Business). Employment in traditional sectors such as agriculture, forestry and fishing is also rising in the two-county region and the Applegate shows an even higher percentage of its employment in these areas. Much of this employment is related to the growing number of nurseries, pear orchards, and wineries in the area; still, many ranchers and farmers support their enterprises with second jobs in nearby cities. Self-employment, at 12% (and as high as 20% in some parts of the Valley) is substantially higher than the national average (7%), as increasing numbers of residents connect to markets and business centers through fax machines, computers and mail order catalogs.

An informal employment network, resonant of bartering systems, exists in the valley. Many individuals continue to grow and gather agricultural and forest products to sell or trade outside of conventional "legitimate" markets. Products such as firewood, handcrafted items, fruits and vegetables, and labor-intensive services are consistently available to local residents for less than market value within this network.

FIGURE 14. INDUSTRIAL SECTORS OF BUSINESS IN THE APPLEGATE RIVER WATERSHED (FROM ANALYSIS OF DEMOGRAPHIC AND ECONOMIC ASPECTS OF THE APPLEGATE WATERSHED, SOUTHERN OREGON REGIONAL SERVICES INSTITUTE, 1996.)



Applegate Watershed Business Survey,
SORSI/SOSC, 1995

INCOME

Two summary measures of income—per capita and mean household—show that the income of residents of the Applegate Watershed is comparable to that of the larger two-county region. The 1989 per capita income for the valley was $11,356, slightly below that of the two county region ($11,988). Mean household income was also similar: $29,759 for the watershed compared to $30,441 for the two counties. Mean household income for the Jackson County portion of the watershed is $33,080, compared to $28,407 for the Josephine County portion; the national level is $38,453. The "Family Wage Job" income level for Jackson and Josephine counties combined (annual covered payroll for all industries) for 1996 is $22,203 (OEDD, 1997). The self-employed are not represented in these figures.

Transfer payments account for a sizable portion of local personal income and the poverty rate in surrounding counties (Jackson at 14% and Josephine at 15%) is higher than the 1989 national poverty rate (13%). The watershed has a slightly higher rate of both high-income and low-income households than does the two-county region in Oregon as a whole. This disparity in income may account for a higher average price of homes (10.5% higher), higher mean household income, and higher mobile-home occupancy.

UNEMPLOYMENT

While there is only a small difference between the total 1990 unemployment rate for the Applegate (7.9%) and the two county region (8.2%), what is notable are the differences between counties, for Jackson (7.4%) and for Josephine (10.4%). The national figure was 6%, which is substantially above the Jackson County portion (4.4%) and below the Josephine County portion (9.3%) of the Applegate Watershed.

UNEMPLOYMENT (CONT'D)

Perhaps the lower unemployment rate for the Jackson County portion of the watershed is indicative of the higher level of self-employment. Almost one-fifth (19%) of the employed labor force reports to being self-employed, compared to 9% in the Josephine County portion.

PAYMENTS IN LIEU OF TAXES

Because Jackson and Josephine counties have large percentages of their land base in federal ownership, payments from the Forest Service (25% of gross receipts go to roads and public schools) and Bureau of Land Management (50% go to counties) figure prominently in support for local services. For instance, for fiscal year 1992-1993, $14,205,158 or 42%of the total Jackson County General Fund of $34,101,647, was from O&C (Bureau of Land Management) receipts). In contrast, $1,261,690 or 4% came from property tax receipts. During much of the 1980's, when harvests and receipts were higher, and before the legislative “safety net” which currently safeguards communities from large-scale reductions, as much as 55% of county funds was accounted for by O&C payments and 4% of school funds by USFS payments (FEMAT, 1993). Table 3 shows the drop in receipts from 1989 to 1996 from USFS and BLM (Oregon Employment Department, 1996). These payments are projected to continue dropping until harvest levels stabilize at a lower level, or the year 2004 when the safety net amendment is slated to cease. County services provided to Applegate residents include sheriff patrol and the rural action team station in Ruch, the District Attorney's office and related county offices and facilities, health clinics and outreach, juvenile protection and detention programs and road maintenance. These services have decreased with the circumscribed level of federal receipts and will continue to do so without other sources of revenue.

TABLE 3.

FEDERAL RECEIPTS TO COUNTIES

(AMOUNTS SHOWN IN DOLLARS)

	Fiscal Year 1989			Fiscal Year 1996		
	USFS	BLM	Total	USFS	BLM	Total
Jackson Co.	6,396,545	17,059,930	23,456,475	4,228,807	11,445,240	15,674,047
Josephine Co.	3,478,402	12,977,482	16,455,884	2,038,252	8,823,133	10,861,385

	Total Change	% Change
Jackson Co.	-7,782,482	-33%
Josephine Co.	-5,594,499	-34%

SOCIAL SETTING

COMMUNITY PROFILE

Communities in the Applegate Valley are similar to many rural (oftentimes formerly) resource-dependent communities in transition. The region's economic and demographic flux results in a community "identity" confusion that challenges the ability of the communities to agree on a common vision for the future. Studies of rural communities experiencing similar economic and social transitions describe them as being vulnerable to economic and political change and incapable of reacting to problems associated with growth or decline, "let alone to act in any organized, proactive manner" (FEMAT, 1993, p. VII-45). Other studies suggest that personal and social stress in these communities are consequences of changes in forest policy which are also responsible for vilification of loggers, social dislocation and alienation (Lee, 1991b; Carroll and Lee, 1990). Interface communities–those places where residential settlements and forests meet–generally are said to be threatened by changes in land ownership and social composition which undermine "the long-term integrity and traditional uses of land" (Bradley, 1986; Shands, 1991).

While the Applegate communities can be viewed as vulnerable to these economic, political and personal stresses, their resources and capacity have allowed them to move proactively and address these changes. Fearing a future as bedroom communities of housing developments, community members seek to maintain their agricultural and resource-based heritage while developing opportunities for participating in the growing service sector. The diversity of activities in the valley, both formal and informal, are related to the Applegate community's leadership, social networks, social capital and community capacity .

COMMUNITY LEADERSHIP

Despite the absence of political infrastructure and official leadership in the valley, numerous persons with vision and skills galvanize the community. Key individuals have spurred action in a wide range of community development, environmental protection and social support arenas. Much of this leadership is embedded in social relationships and gathers momentum though interaction of residents organized in social institutions and linked together by a culture of caretaking. Community centers, schools and churches bring together many diverse elements in the community; along with service clubs and informal neighborhood networks they provide many of the caretaking services of the community. There are economic leaders in the community, as well, and economic activity connects different segments of the community, for example, middle class commuters hire alternative community people for property maintenance and woodlot management, and timber activists hire local loggers to work on their property (Preister, 1994).

COMMUNITY LEADERSHIP (CONT'D)

These social and economic exchanges form a social infrastructure, which builds community resiliency and adaptability to outside forces. People make decisions and take action, but this action is often most effective through groups. Ultimately, the watershed's social networks account for the its cooperative and effective leadership.

SOCIAL NETWORKS

Networks are defined as "a value-based, spread-out, process-oriented, multi-centered social form" (Lipnack and Stamps, 1986) which can mobilize individuals and groups to address shared problems. Networks facilitate the flow of resources, particularly mutual aid and information. Network diversity allows leadership to be spread broadly, and allows a range of voices and ideas to be employed in innovative strategies. Like many rural communities, networks in the Applegate include informal groups (kinship, friend and neighborhood support systems), grassroots organizations (community improvement, environmental, community churches), and often formal organizations (Lions, Grange Historical Society, Applegate Christian Fellowship). These networks in the Applegate have a number of points of overlap with one another, as well as with other networks in the region. These multiple, diverse and dense networks contribute to the overall capacity of the community.

An understanding of social networks–especially the informal caretaking and information links–has provided forest managers new access to a diverse array of previously overlooked publics and issues. These networks contributed to the formation of the Applegate Partnership and are called upon in community outreach efforts; in turn, networks formed through the Partnership have created a new proliferation of community forums for civic action regarding local economic development, land-use zoning and stewardship of public facilities.

COMMUNITY CAPACITY & SOCIAL CAPITAL

As in the Applegate Partnership, "networks of civic engagement foster sturdy norms of generalized reciprocity and encourage the emergence of social trust" (Putnam, 1995). Such networks facilitate communication, willingness to take responsibility for the collective, and collaborative problem-solving.

Community capacity, which is the collective ability of residents in the community to respond to change, has allowed the Applegate to capitalize on the positive dimensions of socio-economic and demographic changes and absorb social stressors created by these trends and changes in land management and ownership patterns. The ability to react to change, solve problems, and work together for a common good, sometimes referred to as "social capital", is essential to successful communities. The definition of a successful community fits the Applegate Valley well:

> "Successful communities have committed volunteers who serve in many ways, some organized, some quietly individualistic. They have lots of organizations, meetings, events, festivals, and parties. There's not a night in the week that something isn't going on." (Kinsley, 1997).

COMMUNITY CAPACITY & SOCIAL CAPITAL (CONT'D)

Newcomers and "midtimers" have contributed greatly to the social capital and community capacity, as well as economic vitality of the Applegate Valley. They bring new ideas and enthusiasm to civic organizations. Newcomers have joined others seeking to "re-create" community; working to strengthen the links between healthy communities, stable local timber industries and healthy forests.

COMMUNITY CONFLICT & DIVERSITY OF VALUES

The social diversity of the area, with its different waves of migrants and different occupational and residential communities, has contributed to a sense of tolerance for differing values and life-styles. Multiple disputes among differing groups (e.g., between local farmers and hippies over the Barter Faire, between local Ruch community members and the growing Applegate Christian Fellowship, between residents and local rock quarry owners) demonstrate that conflict is ubiquitous, multi-dimensional and must be addressed positively.

Class and status differences account for some of this conflict. Most recent waves of newcomers come with economic assets (often from the sale of property in urban areas–hence, the name "equity migrants") and human resource strengths (e.g., education and training). Their impact on the local community can include rising property values, competition for existing jobs and markets, and restricted access to public and private lands and natural resources. For example, an Applegate Partnership Board member, in order to stay on the farm settled by her grandfather, sold a prime riverfront section, resulting in the loss of access to the river by friends and neighbors accustomed to crossing the land. More subtle, but perhaps even more significant, effects of status differences are the symbolic statements about personal worth that people display with their conspicuous consumption.

People moving into the Applegate, like most “reverse migrants” (those moving from urban to rural areas), tend to be older, retired couples or relatively younger families; many are more affluent. Such newcomers often act as "advocates of change" as they bring political competencies, as well as expectations for what constitutes the "good life”.

COMMUNITY CONFLICT & DIVERSITY OF VALUES (CONT'D)

Four key cultural findings were summarized by Kevin Preister in the community assessment (Preister, 1994).

1. Valley residents have a strong land ethic. Caretaking of the land was common to all major community segments, including agricultural workers, forest workers, and newcomers.
2. Community discussions often center on the "old-timer/newcomer" theme. This dichotomy reveals differences in values, orientations to the land, and lifestyles.
3. The rural culture still "works," which means–despite frequent comparisons between "oldtimers" and "newcomers"–cooperation and support still predominate.
4. Caretaking systems–the many ways neighbors support each other–are stretched to their limit. The community has been fragmented by the influx of new people and by the decline of the agricultural and forest base. Also, as state and federal regulation of resources has increased, the local land ethic has been challenged. This situation has led to the current efforts to recreate a sense of community.

COMMUNITY ORGANIZATIONS

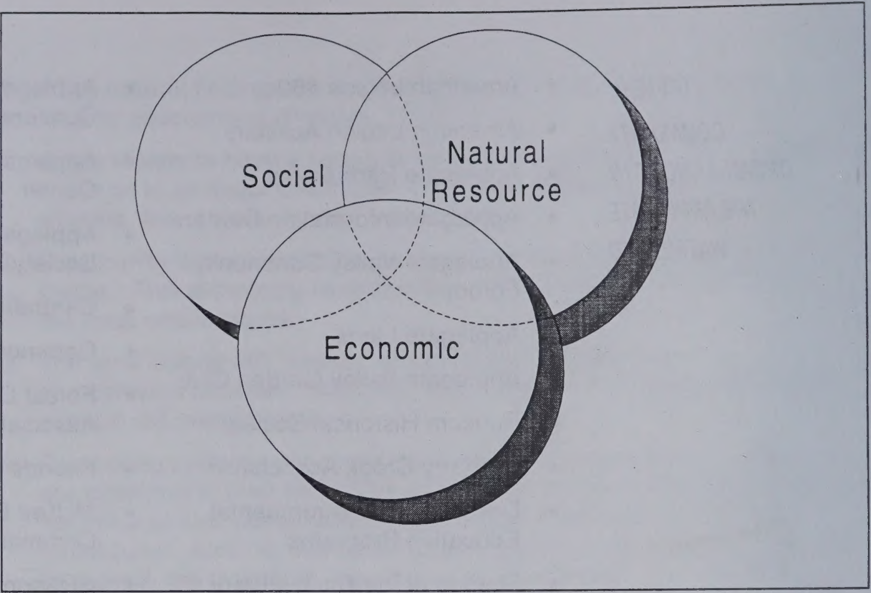
The valley boasts over 20 community organizations; some were established long ago-like the granges; others have emerged in response to the dynamics of social, economic and political forces–especially changes in natural resource policy, such as the Applegate Partnership (see Table 4). Although community organizations don't intentionally or formally divide themselves into this structure, they practically can be represented within the overlapping diagram represented in Figure 15. In the last five years, organizations have emerged in response to specific issues and are both social and activist in nature; they move beyond satisfying the need for social contact felt in rural communities.

TABLE 4. COMMUNITY ORGANIZATIONS IN THE APPLEGATE WATERSHED

- American Legion #50
- American Legion Auxiliary
- Applegate Partnership
- Applegate Information Center
- Applegate Valley Community Forum
- Applegate Lions
- Applegate Valley Garden Club
- Buncom Historical Society
- Carberry Creek Association
- Dakubetede Environmental Education Programs
- Friends of the Ruch Library
- Friends of the Williams Library
- Josephine County Farm Bureau
- McKee Bridge Lions
- Provolt Grange
- Ruch T.O.P.S. (Take Off Pounds Sensibly)
- Threatened and Endangered Little Applegate Valley: (TELAV)
- Murphy Citizens Advisory Committee
- Williams Citizen Advisory Committee
- Applegate Core
- Applegate Agrarians and Gatherers
- Applegate River Watershed Council
- Applegate Watershed Conservancy
- Applegate Valley Community Center
- Applegate Valley Historical Society
- Cantrall-Buckley PARC
- Communiversity
- Forest Creek Community Association
- Friends of the Applegate Library
- McKee Bridge Advisory Committee
- Jackson County Stockman's Association
- Logtown Cemetery
- North Applegate Watershed Protection Assoc.
- Rural Action Team
- Upper Applegate Grange #839
- Murphy Neighborhood Association Thompson Creek Residents for Environmental Education (TREE)
- Williams Rural Fire Protection Dist. Bd.
- Williams Town Council
- Williams Grange
- Jacksonville/Applegate Rotary
- Williams Creek Watershed Council

FIGURE 15.

PROJECTS AND PROGRAMS ADDRESS SINGLE ISSUES TO SOLVE COMMUNITY PROBLEMS IN THE CONTEXT OF NATURAL RESOURCE PROTECTION AND ENHANCEMENT, ECONOMIC RESILIENCY, AND COMMUNITY CAPACITY.



Many of southern Oregon's most active watershed-based environmental groups are located in this area. Headwaters was formed in the mid-70's by "back to the landers" living in the Applegate watershed who were concerned about large-scale clear-cutting, herbicide applications and upstream riparian damage which threatened the perceived quality of life in their neighborhoods. Although Headwaters has since relocated to nearby Ashland, a significant portion of its membership is in the Applegate Valley, and it works with eight local watershed and environmental protection groups region-wide.

APPLEGATE PARTNERSHIP

The Applegate Partnership is a community-based group involving industry, conservation groups, natural resource agencies, schools, and residents cooperating to encourage the use of natural resource principles that promote ecosystem health and diversity. The group formed in 1992 to find common ground and resolve resource conflicts. It's vision includes the following emphasis, "Through community involvement and education, this partnership supports management of all land within the watershed that sustains natural resources and that will, in turn, contribute to economic and community well-being within the Applegate Valley" (Applegate Partnership, 1993).

Though most organizations retain the loyalty of their membership, the Partnership is viewed as place where residents can take their issues when they have exhausted other attempts at solving problems. Partnership board members are viewed within the communities as leaders who can “make things happen” and “get things done.”

APPLEGATE PARTNERSHIP (CONT'D)

Locally, most people are unaware that the Applegate Partnership is one of the most well-known coalitions involving natural resource issues in the United States. It is the subject of numerous news articles, research studies, and videos conducted by people from around the world. The fundamental issues driving the Partnership, e.g., how communities and forests can be mutually sustainable, are shared by people globally. As a result, the area has frequent international visitors.

The Applegate Partnership has encouraged the agencies to design and complete innovative landscape-level timber sales incorporating public values and knowledge, agency science and learning. The Lower Thompson Creek Sale followed by many other timber sales have been planned and sold, and have won accolades from local citizens, and state and federal agency personnel. Data are not available to determine the economic impact of recent timber sales (see Appendix B, Table A showing over 50 million board feet of timber which have been sold since 1994). Generally the community has been supportive of the shift in timber sales from clearcuts to selective thinning.

The Applegate River Watershed Council, one of over 50 councils begun in Oregon under the administrative umbrella of the State Watershed Management Group to restore watershed ecosystems, has provided an opportunity for the Applegate Partnership to address forest health issues on private lands. Because the Applegate Partnership met many of the objectives and criteria of the Watershed Councils, it was designated the Council for the Applegate River watershed by county commissioners during the spring of 1994. The Council is technically a subcommittee of the Partnership; many participants are active in both. The work of the Council focuses on riparian restoration on private lands.

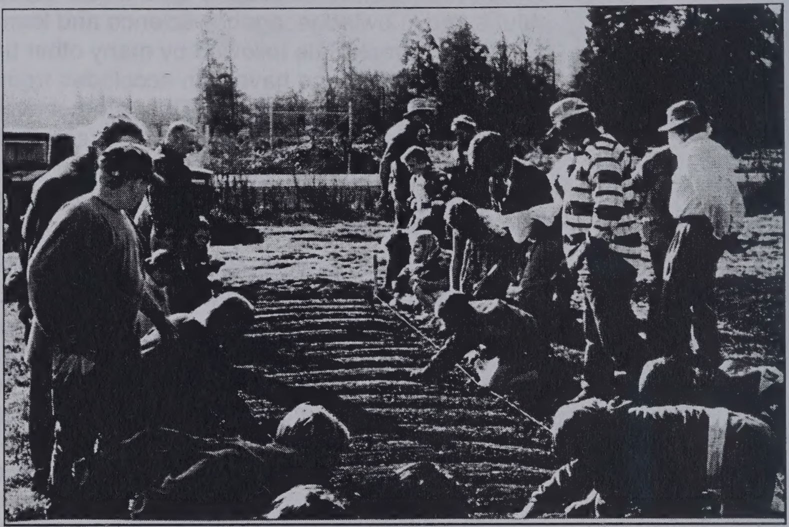
The Council has had far-reaching success in the community with concrete results. It completed an extensive watershed assessment and implemented a number of state-funded riparian restoration projects across private properties. The Bureau of Land Management and Forest Service have shared Geographic Information System (GIS) files, inventory, assessment, and monitoring data with the Council. The sharing of resources, remarkable staff, high quality of work, and funding from the State (as well as other sources) has enabled the Council to be extremely productive. The Council has funded and staffed the Applegator community newspaper distributed to all households in the Applegate every two months free of charge. It provides a neutral forum for sharing information, local history and diverse ideas. The Council sponsors informative public meetings for community members to bring their concerns about water to representatives from state and federal agencies.

It has coordinated local school children and residents in tree planting projects; so far over 250,000 trees have been planted in riparian habitats involving more than 200 landowners.

APPLEGATE PARTNERSHIP (CONT'D)

The Bureau of Land Management has partnered with the Council to grow trees and other riparian vegetation at the BLM-managed Provolt nursery until the seedlings are ready for planting on private lands (see Figure 16.) Other riparian health projects include reconstruction and installation of irrigation ditch headgates and fish screens, fencing to control surface pollution, and repair of roads to eliminate salmon habitat sedimentation. The Council has also initiated a number of complex planning efforts including evaluation of aggregate mining (for Josephine county) and implementation of the Governor's Salmon Recovery Plan.

FIGURE 16.



Volunteers working with the Applegate River Watershed Council at the BLM Provolt Nursery (JD Rogers, 1997.)

The work of the Applegate Partnership has inspired and empowered community members and organizations to take action and address emerging social, natural resource, and economic issues. Collaborative work among the agencies, the Applegate Partnership (including the Applegate River Watershed Council), and other interested citizens has created a proliferation of community forums for civic action regarding local economic development and reinvestment, land use zoning, watershed restoration, and stewardship of public resources and facilities. The shared vision, sense of place, and recognized successes of the Partnership have translated to other groups. The Partnership has spawned not only hope and entrepreneurial learning for multiple community groups, but also social learning and evolving institutional change for public agencies.

A VISION FOR THE FUTURE

The Applegate Valley Strategic Plan was finalized in July, 1997. Strategic planning is a process by which communities or organizations develop a vision of the future, and plans to reach that future. The present situation is evaluated and future situations are estimated, so that strategies can be developed to take advantage of opportunities and strengths, and mitigate for weaknesses and threats. The goals identified in the Applegate Valley Strategic Plan demonstrate public concerns and awareness of the interconnections of the social, economic and natural systems. Community members feel strongly about federal land management agency activities and want them to incorporate community goals and objectives into project planning. Some of the natural resource goals that have emerged through the strategic planning process include:

- Managed healthy natural systems that support a variety of resources, including wildlife and wood products, clean air, clean water and healthy forests
- Coordination of all resource management agencies within watershed boundaries
- Maintenance of stream flows for anadromous fish populations and clean water
- Coordination between citizens, watershed councils and agencies to restore salmon habitat
- Protection of wells, irrigation and water systems
- Managed forests that will reduce risk of fire and reintroduction of fire where appropriate
- Control of noxious weeds
- Consideration of social and economic goals in development of agency programs and projects; support of the Applegate Partnership in its efforts to integrate community and forest health, especially in the areas of biodiversity, selective logging and influencing federal timber targets; consideration of cumulative effects from management on private industrial lands
- Employment consistent with ecosystem management; cattle allotments on public lands that are managed in an environmentally sustainable manner
- Use of cattle and sheep to graze nursery allotments
- Support of forest-based foster recreation economies, including development of bike and horse paths
- Connect local labor market to byproducts of ecosystem management
- Develop positive, on-going relationships with federal agencies regarding management of natural resources

Local development efforts (e.g., marketing small diameter wood products and creation of the *Applegate Direct,* a directory of businesses in the watershed), have emerged from the Strategic Plan, and have coalesced within a broader goal–the development of a valley-wide community and economic development organization. This organization will serve as an "enabling" organization to the 12,500 residents in the five unincorporated core communities of the valley (Ruch, Applegate, Williams, Murphy, Wilderville). It will provide support to the residents by assisting in the prioritization, evaluation, planning and implementation of community and economic development projects that are identified in the recently completed Applegate Valley Strategic Plan (funded by the United States Department of Agriculture Forest Service), as well as other community projects and programs. This "umbrella" organization will facilitate community-based planning and implementation of neighborhood and business improvement projects that seek a healthy and dynamic balance between ecological, economic, and social concerns.

The land management agencies of the Adaptive Management Area have developed and adopted a Public Involvement Guide (see Appendix E) to offer resources and tools to assist in the practical application of an effective public involvement process. One of the goals of creating this guide is to facilitate a new level of cooperation and collaboration between communities and federal agencies in the context of new directions in public land management and community settings. This goal can only be achieved when citizens, resource managers, and governmental leaders work to support and sustain an open process of integrated community and ecosystem planning.

PART 4 —INTERAGENCY ORGANIZATION

HISTORY

The Forest Service and Bureau of Land Management have similar missions with guiding principles of land stewardship and serving the public. Both agencies have undergone extensive changes over the years; these reflect changes in society's expectations for how public lands should be managed.

Forest Service rangers first came in 1906 to administer the newly created Crater National Forest, which later became the Rogue River National Forest. These early organizations were very small and included a ranger and clerk with seasonal fire crews.

Much of the work involved laying out trails, telephone lines, fire lookouts, and range permits. The Bureau of Land Management took over administration of non-national forest federal timber lands within the watershed in the late 1940s (LaLande, 1995).

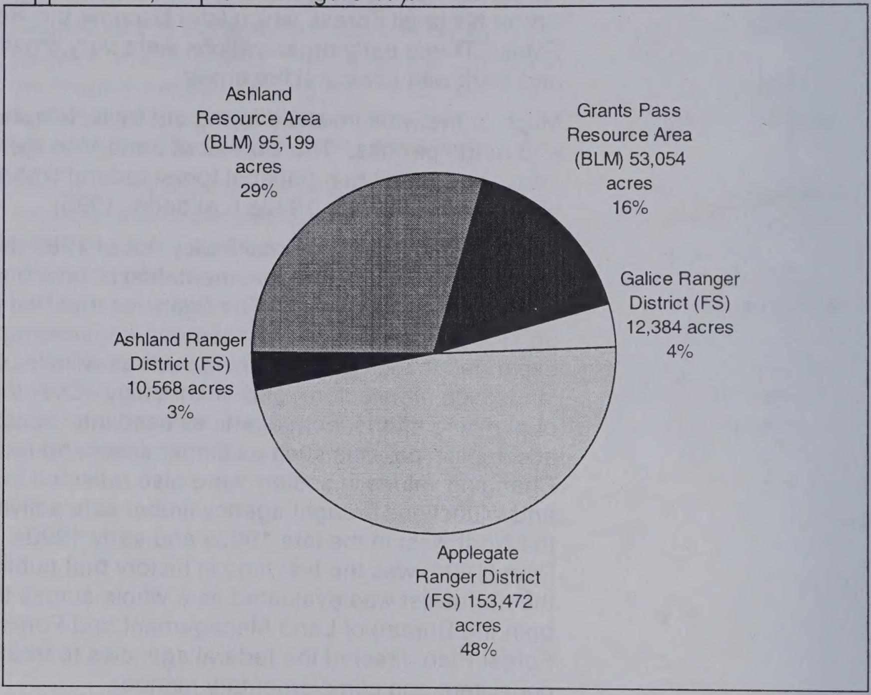
The National Environmental Policy Act of 1969 (NEPA) encouraged greater awareness and documentation of environmental effects of human-caused activities. The agencies that had previously been made up, primarily, of timber management, engineering, and fire personnel expanded to include specialties such as wildlife, soils, fisheries, landscape architecture, and archeology. Over the next several decades of planning efforts, both agencies used interdisciplinary team efforts to accomplish projects such as timber sales and recreation developments. Changing values in society were also reflected in the agencies. Lawsuits and injunctions brought agency timber sale activity to a virtual standstill in the Northwest in the late 1980s and early 1990s. The Northwest Forest Plan (1994) was the first time in history that public forest management of the northwest was evaluated as a whole across the lands managed by both the Bureau of Land Management and Forest Service. The Northwest Forest Plan directed the federal agencies to treat the ecosystem in a consistent and complementary manner.

Since the Northwest Forest Plan was considered legally sufficient to protect the viability of the spotted owls, among other species, timber harvesting was resumed. Many things have changed in the years since this Plan, including watershed analyses (more extensive background information gathered before projects), survey and management of more plant and animal species, and interagency cooperative efforts, to name a few. Human beings are considered part of the ecosystem in planning future landscapes. Forest products are still needed by people, and management of ecosystems must plan for this need.

ADAPTIVE MANAGEMENT AREA ORGANIZATION

The Northwest Forest Plan included lands administered by both the Bureau of Land Management and Forest Service as part of the Applegate Adaptive Management Area. This is the first time in the history of southwest Oregon that public land administered by the two agencies is expected to be managed in an integrated manner across the agency boundaries. The distribution of lands in the Applegate Adaptive Management Area includes the Applegate Ranger District and Ashland Ranger District of the Rogue River National Forest, the Galice Ranger District of the Siskiyou National Forest, and the Ashland Resource Area and Grants Pass Resource Area of the Medford District BLM (see Appendix G, Map 3 and Figure 17).

FIGURE 17. DISTRIBUTION OF LANDS IN THE APPLEGATE ADAPTIVE MANAGEMENT AREA BY MANAGEMENT UNIT.



NOTE: LANDS IN THE ASHLAND RANGER DISTRICT (WHICH ARE PART OF THE APPLEGATE ADAPTIVE MANAGEMENT AREA) ARE NOW MANAGED BY THE APPLEGATE RANGER DISTRICT.

Currently an Interagency Liaison is assigned to coordinate work with the various units in Forest Service and BLM. The liaison and the line officers from all units meet at least once a month to identify opportunities for learning, sharing resources, and coordinating management. Line officers include the Forest Service District Rangers and the BLM Resource Area Managers. When the Applegate Adaptive Management Area was first initiated, the line officers discussed the challenges and opportunities of having five separate units managing the area. The chance for different approaches to be tested was considered a real advantage. It was also recognized that keeping separate units created additional responsibility in coordination and planning, as well as in community involvement.

ADAPTIVE MANAGEMENT AREA ORGANIZATION (CONT'D)

The Rogue River National Forest chose to shift management of the 10,568 acres of land in the Applegate Adaptive Management Area which had been managed by the Ashland Ranger District to the Applegate Ranger District (which already was managing over 150,000 acres in the Adaptive Management Area).

Testing hypotheses, conducting research, and monitoring the results of innovative projects are key elements of the Adaptive Management Area. To support sound scientific design, a scientist from the Pacific Northwest Research Station (PNW) is assigned to assist each Adaptive Management Area in developing appropriate research and monitoring. A Research and Monitoring Coordinator (at the local level supported by Bureau of Land Management, Forest Service, and Pacific Northwest Research Station) is working part-time assisting in this effort. Also a technical team was created to gain expertise from a wide variety of people, including agency personnel and private individuals. The focus for the research and monitoring program is described in Applied Learning section.

Additional interagency support to the Applegate Adaptive Management Area is given by Geographic Information Specialists (GIS) and a Community Relations and Development Specialist. Computerized maps have been created and merged across the federal and private lands; these extensive data bases are updated to include new information (see Appendix G). The Community Relations specialist assists local communities with grants and other opportunities; develops more information about harvesting, marketing, and utilization of small wood products; and assists in communication between agencies and communities.

Since the Adaptive Management Area organization was initiated in 1994, numerous interagency teams have worked together on various assessments (see Appendix A for a complete list of completed studies). The names, phone numbers, and addresses of key agency participants working in the Applegate Adaptive Management Areas are listed in Appendix D.

COMMUNITY INTERACTION

Community interaction with the federal land management agencies in the Applegate has been ongoing for decades. There has been a significant increase in participation in the last decade. Communication takes many forms, such as informal contacts by personal visits and phone calls, or more formal methods (letters and meetings.)

COMMUNITY INTERACTION (CONT'D)

Adaptive Management Areas are viewed as "settings in which connections to local communities could be fostered" (Stankey and Shindler, 1996). As described earlier, many people cite the Applegate Partnership as the model for the Adaptive Management Areas because this was a preexisting coalition working together on resource management issues. The group continues to hold open meetings drawing on highly diverse interests. Federal employees are no longer board members of the Applegate Partnership (following advice in 1994 from the Justice Department interpreting the Federal Advisory Committee Act). But agency personnel remain active participants in information exchange and identifying collaborative opportunities and are considered "partners" in the group.

The Applegate Partnership's guiding principle is that resource management activities must be "ecologically creditable, aesthetically acceptable, and economically viable". These same principles are also fundamental to the Applegate Adaptive Management Area. The innovative ideas and challenges offered by the Partnership benefits the agencies in significant ways (Sturtevant and Lange, 1995).

In addition to the Applegate Partnership, outreach about the Applegate Adaptive Management Area is made to anyone interested through open houses, neighborhood meetings, field tours, mailings, and by phone. To date no agency-initiated newsletter for the Applegate Adaptive Management Area has been developed. Various Adaptive Management Area field trips or projects are described in the *Applegator*, a publication distributed by the Applegate Partnership through the Applegate River Watershed Council and in the other Forest Service and BLM newsletters.

A frustration many local residents cite is the agencies' "changing of the guard." Over the past twenty years many federal employees moved in and out of the area, making it more challenging for people in the Forest Service and Bureau of Land Management to establish enduring relationships with the land and with residents. However that movement has slowed in the last five to ten years due to downsizing of organizations, fewer job opportunities elsewhere, and personal preference.

There is a high level of skepticism by residents in working with the agencies based on past relationships. Concerns over clearcuts and feelings that the agencies are going to "do what they want to anyway" are strongly held by many residents challenging communication with agency personnel. The best interaction between residents and agency personnel seems to occur with small informal groups of people working together in the field. Rich Drehobl, Ashland Resource Area Manager, reflects this in saying, "We'll meet with anyone, anywhere, anytime, about most anything." This willingness translates to weekend and evening gatherings to meet people's needs.

COMMUNITY INTERACTION (CONT'D)

To encourage more effective public participation in the Applegate Adaptive Management Area, the AMA Public Involvement Guide was developed describing many methods that have worked well, as well other methods which have been proposed by residents and researchers (see Appendix E).

ONGOING PROJECTS

LANDSCAPE PROJECTS

Numerous landscape projects have been initiated in the last few years to meet goals of the Adaptive Management Area. Most of these have been driven by forest health concerns, primarily watershed restoration, reduction of fuel hazard, and increasing resistance of remaining trees to insects and fire. Examples include: Panther Gap Timber Sale, the Thompson Creek Project, Beaver/Palmer Timber Sale, Waters Thin Salvage Sale, as well as Squaw/Elliot, Buncom (Poor Sailor and others), and Little Apple Timber Sales (see Appendix B, Table A. Timber Sales 1994-1998).

There has been a shift in the type of timber sales from clearcuts to "thinning from below," which means that in general, smaller trees are thinned leaving the larger trees in the stand. The remaining stand has fewer trees than before, but the ones left are primarily the larger ones, which will be more resistant to insects and fire. Learning opportunities are often identified in the projects and specific trials to test various practices are designed as part of many projects.

Figures 18 and 19 show "before and after" photographs of the Lower Thompson Creek Demonstration Project. The intent of the project was to examine the results of reducing the density of trees before applying a similar treatment to other areas.

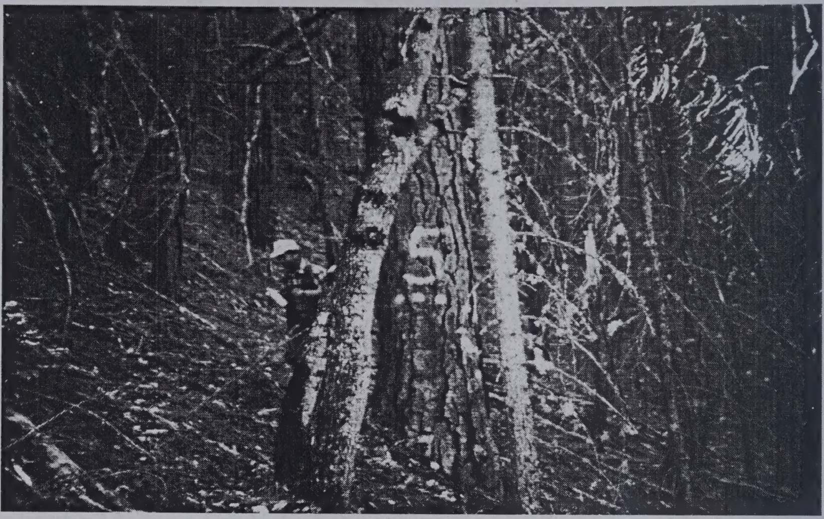


FIGURE 18.
LOWER THOMPSON CREEK DEMO PROJECT BEFORE CUTTING TREES
(S. ARMITAGE, 1996)

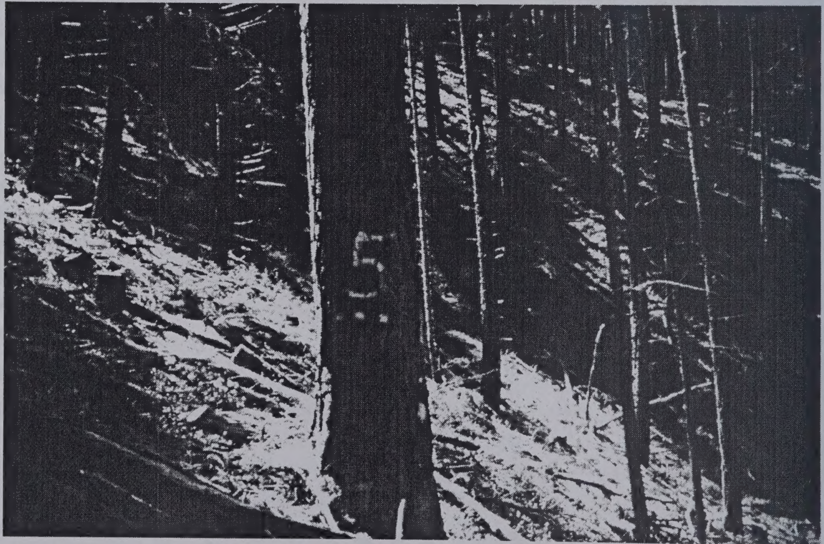


FIGURE 19.
LOWER THOMPSON CREEK DEMO PROJECT AFTER CUTTING TREES
(S. ARMITAGE, 1996)

WATERSHED RESTORATION PROJECTS

Extensive restoration work has been initiated in Beaver Creek, Palmer Creek, Little Applegate River, and in many other areas. Restoration may include improving roads to reduce sediment, replacing culverts, in-stream work to enhance riparian areas, planting native vegetation, etc. Many of these are displayed in Appendix B, Table C. Watershed Restoration Projects.

LANDSCAPE ANALYSIS AND DESIGN

Several projects have used a process called, "landscape analysis and design". Some have been extensive projects with a high level of community participation, e.g., Little Applegate Landscape Design which has occurred intermittently over several years. Other projects such as the Carberry, Upper Carberry Watershed, and Silver Fork have been less intensive, ranging from one day to several weeks of interdisciplinary team work. From these projects, we have learned that there is high value to having an interdisciplinary team evaluating an area in context of how it fits within the larger landscape. It is also useful for teams working with community residents to articulate what kind of characteristics are desirable in the landscape over a long period of time–100+ years.

CARBERRY PROJECT

In June 1996, local resource specialists under the direction of the Applegate River Watershed Council, entered into a participating agreement with the Forest Service to experiment with actively engaging non-agency personnel in land management planning of National Forest land. The project was intended to encourage innovation within the Applegate Adaptive Management Area, particularly in developing new approaches for sustainable landscape ecosystem management and reducing fire hazard, by soliciting the efforts of a dynamic, multiple perspective team.

Team dynamics related to efficiency, internal and public communication, approaches and outputs, etc. were monitored by participants and interested citizens from the perspective of testing and learning.

The participating agreement that was developed outlined mutual benefits, broad project goals primarily targeted to address fire hazard and forest health issues, and product expectations (primarily linked to the completion of an environmental assessment) for a 15,000 acre planning area. The Forest Service, as the responsible federal agency, retained final authority for the selection and implementation of one of the community-generated alternatives. The selected alternative is currently being implemented.

Of particular interest, was the creation of a future 200-year Landscape Visualization for the planning area as a basis for generating future proposed management actions. This highly motivated team conducted various workshops, field trips, and scientific reviews over several months as methods to interact with community members. Learning lessons that resulted from this project have been invaluable to the evolution of landscape planning in the Applegate Adaptive Management Area.

LANDSCAPE DESIGN IN THE LITTLE APPLEGATE

In November 1997, a Forest Service stewardship team initiated a somewhat new approach to landscape scale planning for the 72,000 acre multiple ownership Little Applegate Watershed. The team solicited a locally-based, multiple resource volunteer task force which would ultimately develop and monitor the results of the landscape design process and associated outputs. The focus of this task force was to provide a forum in which agency and non-agency participants would answer the difficult question, "What is the balance between short-term use of forest resources to sustain jobs, quality of life, etc. versus long-term moral and ethical stewardship for future generations?".

The overall goals of this project focused on:

- linking good science tied to passion and connection with the community
- understanding and defining the cultural boundaries and neighborhood networks within the larger Little Applegate community
- balancing individual best interest (physiological satisfaction) with mutual community benefits
- coupling community values to ecology and current policies (e.g., Northwest Forest Plan applied to agency administration, county zoning laws, etc.)

The task force team's approach centered on the development of mutual community goals by exposing participants to a variety of cultural values either through interactive situations (e.g., methods such as linking community residents to Landscape Architecture graduates students form University of Oregon), and creating informal educational forums (e.g., monthly evening presentations at the local grange hall). The team placed an emphasis on balancing open, safe dialogue regarding process coupled with experiential activities and short-term outputs. Follow-through and consistency were central to the process.

After numerous technical and community reviews, a final "vision" for the Little Applegate has been established as a mutual "starting point" to begin strategic planning and monitoring. Currently being developed is a watershed-based resource action plan for all land ownership. Similar to the landscape design process, alternative action plan proposals will be evaluated technically and cycled through the community until a mutual agreement is made by all participants.

OTHER INNOVATIVE PROJECTS

Several other projects have given the agencies and communities great opportunities to learn. The Upper Glade pilot project is designed to manage and utilize small sized trees less than 9 inches in diameter to enhance and sustain forest ecosystem health by:

- Tying in short-term objectives to the long-term Little Applegate Forest Landscape Design which outlines social and ecological goals
- Experimenting with various types of innovative contracts (e.g., allowing options for trading products for services, multi-year renewal, end-results, etc.
- Using revenues gained from commercial enterprises linked to this project to create "trust funds" that would be partially used to manage small diameter material over time
- Testing innovative harvest systems and the development and operation of a log sort yard (to separate different sizes and classes of logs)
- Testing "greenwood-certification" to determine if this process will drive better ecosystem management and result in higher market values for wood products

Another innovative project is the Humbug Project in which the Bureau of Land Management used the “Wyden Amendment” which allows for BLM or Forest Service funds to be used on private lands to benefit watershed conditions. In the Humbug Project, the Applegate River Watershed Council received BLM funds to develop new processes in working with private land owners adjacent to BLM lands in reduction of fire hazards. The work required coordination with local fire district and the State Department of Forestry as well as private land owners in identifying hazards on private lands.

Although not a Forest Service or BLM project, an Oregon State University project headed by Dr. Norm Johnson has begun and may yield important information for future planning. Called the “Applegate River Watershed Forest Simulation Project,” the project is intended to develop a model for the fire-prone landscapes of southwestern Oregon. The computer model will simulate forest and watershed conditions under different management practices that emphasize the interaction of forests, fire, insects, diseases, watersheds, and people. The Oregon State University team has been working with interested people to develop resource management goals and criteria for evaluation. Initial results are expected spring, 1999.

SMALL DIAMETER MATERIALS PROGRAM

Land management agencies and the public alike have recognized a decline in forest ecosystem health and increased fire hazard in forests, and have identified forest stand overstocking as a major cause for these conditions. The primary constituent in this overstocking problem is the enormous number of small diameter trees which are drawing from the limited moisture and nutrients available on stand sites. These factors contribute to the weakening of surrounding mature forests and makes them susceptible to insects, disease, drought and wildfire

SMALL DIAMETER MATERIALS PROGRAM (CONT'D)

Although density management activities are currently underway throughout the valley, by both private landowners and federal agencies are experiencing limited success in implementing thinning treatments of primarily smaller diameter (4-11 inch) material. When federal timber sales have a high percentage of small diameter material, they are not economical for potential buyers and many of those areas are left untouched. Private landowners are also finding that the small diameter timber resource does not "pay its way" out of the forest. They must pay for treatment with no hope of recuperating treatment costs.

Fortunately many private landowners are using the United States Department of Agriculture funded cooperative forestry program administered by the state of Oregon (SIP or Stewardship Improvement Program) for some assistance.

The Applegate Adaptive Management Area initiated a Small Diameter Materials Program in 1995. This program has been developed by the agencies within the Adaptive Management Area and the community and is a comprehensive, interdisciplinary program that addresses the problems related to density management activities. The goals of this program are simple: maximize the economic impact of available forest resources by capturing as many opportunities as possible to add value to the resource before it leaves the region; and satisfy ecosystem management objectives. Yet while these goals are simply stated, the problems associated with implementing strategies that will achieve them is complex. (See Systems, Interagency Organization for more information about the program.)

RESEARCH AND MONITORING

Extensive research and monitoring projects are also underway. Many of these projects are done concurrently with other projects. See "Applied Learning" for more discussion and Appendix C for a complete list.

INTERNATIONAL MODEL FOREST PROGRAM

The Applegate Adaptive Management Area was one of three areas in the United States invited to join an international system of forests and communities focusing on learning about sustainability. The International Model Forest Program originated in Canada and now includes sites in Mexico, Russia, Thailand, Chile, and other countries. The intent of this association is for all model forests to share research and resources to facilitate technical and social innovation (especially in developing nations). Personnel from other countries regularly visit the Applegate Adaptive Management Area; information is exchanged on an on-going basis. This program is expected to expand over the next several years.

INTERNET ACCESS A Home Page has been developed for the Applegate Adaptive Management Area as part of an umbrella Home Page for the Applegate River watershed. The internet will be an important way of publicizing what is happening in the Adaptive Management Area, and explaining how people can get involved. Currently, all research and monitoring projects are listed, as well as a number of other on-going activities. For other Internet addresses and for natural resource information available from the federal government, see Appendix F Internet Information.

- *APPLEGATE ADAPTIVE MANAGEMENT AREA WEB PAGE:* **http://id.mind.net/community/app/**
- *ALL ADAPTIVE MANAGEMENT AREAS' WEB PAGE:* **http://teleport.com/~amanet/**
- *INTERNATIONAL MODEL FOREST PROGRAM WEB PAGE:* **http:/www.idrc.ca/imfn**

PART 5 –SYSTEMS

SETTING THE STAGE

This section of the Adaptive Management Area guide describes various "systems" (e.g., Terrestrial, Aquatic, Social and Economic, Organizational, and Applied Learning)–recognizing that all these systems are essential elements to the whole and each affects all others. *Ecosystems are totally integrated and any separation is artificial.* The reason these systems are broken out in this Guide is purely administrative to increase the ease of tracking issues and actions for the many components.

Each system (e.g., the "terrestrial" system, the "aquatic" system) is described briefly in this current section. The reader is encouraged to review references in Appendix A for more detail. A preliminary list of the most pressing issues pertinent to each system follows, including strategies and specific actions for implementation over the next several years. It is by no means a comprehensive list. These issues have come from numerous discussions and various assessments. The list will change through collaboration and further evaluation.

Many of these actions will correspond to the Projects Table (Appendix B.) This information will be updated annually.

APPLEGATE LANDSCAPE DESIGN

It is a stretch for many people to even think about 200 years from now; and yet, a long-term scenario is needed before a picture can be created of the desirable conditions 20 years from now. In our management actions, we are not exactly aiming towards a specific picture of what the landscape will look like 50 or 200 years from now. Rather, we are trying to define those natural processes and conditions that allow us to maintain a healthy system–one in which our actions attain a balance with forces (such as climate) that we cannot control.

Landscape analysis and design has been used by a number of teams in projects in the Applegate Adaptive Management Area. The challenge is how to apply the process at the entire watershed scale to include private and public lands. It is extremely important to develop ways to include private lands in analysis and *potential* design without implications for controlling future land use. The Little Applegate Landscape Design team has provided an excellent example thus far in that 83,000 acre watershed. Many people also have reservation about the feasibility of initiating such a process over the 500,000 acre watershed.

Several important questions pertinent to the entire Applegate ecosystem are: "How can a strategic plan be designed across the entire Adaptive Management Area to address the big picture over time and space?

Question #1. How can we ensure that there is integration between watershed analyses, protected areas, and fire hazard reduction projects? What can we do to plan good projects for purposes such as reducing fire hazard, improving fish and wildlife habitat, and ensuring biological diversity and functioning ecosystems over such a large area and over time? How can we work effectively together in this landscape design and insure we are incorporating information into on-going projects?

Strategies/Actions:

Based on the effectiveness of projects such as Little Applegate Landscape Design, initiate a project to evaluate the entire watershed and the physical features of the landscape over the long-term (the next 50, 100, and 200 years) that would achieve the desired future conditions of the systems in the Applegate Adaptive Management Area. Data and effectiveness from these aforementioned projects is expected to be available within the next several years. At that time, this ambitious project could be launched.

One approach is to initiate a team to focus on the Applegate Adaptive Management Area (which includes the federal lands and comprising about two-thirds of the Applegate River watershed). Information on private lands is critical to the analysis phase, but the design phase would only include federal lands. Extensive work with the Applegate River Watershed Council and other residents and interested people could further refine future steps needed.

- An interagency team (including Bureau of Land Management, Forest Service, US Fish and Wildlife Service, National Marine Fisheries Service, and others) could be chartered to accomplish a landscape ecology analysis and design. Existing information will be used to address federal, state, county, and community objectives that relate to existing policies to determine if they are compatible with natural processes and conditions. The team would also evaluate fire risk and hazard, restoration needs of terrestrial and aquatic systems, mature and old-growth habitat viability, as well as biological diversity and overall resiliency components such as:
    - ⇒ Clear management objectives, time frame for the process, and commitment of resources. Objectives come from the Northwest Forest Plan and specific objectives for the Applegate Adaptive Management Area (including learning objectives identified for the area (see the Systems, Applied Learning section).

SETTING THE STAGE (CONT'D)

⇒ Objectives derived from the Forest Plans of the Rogue River and Siskiyou National Forests, and the Resource Management Plan of the Medford District Bureau of Land Management will also be considered

⇒ The design process to be used

⇒ How private individuals can participate in the process

Analysis phase

- The analysis phase described in *Forest Landscape Analysis and Design* (Diaz and Apostol, 1992) includes:

  ⇒ Landscape elements (such as vegetative and aquatic patterns)

  ⇒ Landscape flows (movement patterns of people, animal migration, water flow, etc.)

  ⇒ Relationships between landscape elements and flows

  ⇒ Natural disturbances and succession (such as fire, floods)

  ⇒ Linkages with surrounding landscapes (such as bringing together the smaller scales, such as the Little Applegate River watershed, with the larger scales such as the Klamath Geographic Province)

  ⇒ Environmental history including climate changes

Design phase

- The design phase would then take the information from the analysis, incorporate the objectives, and create a future design over time and space. This design would indicate what projects are needed, when the projects should be done, where they should be done, and how they should be monitored (against what indicators?). Objectives include those identified in the first step, described above, as well as those resulting from the landscape analysis process–the desirable landscape patterns indicated in the analysis (such as types and arrangement of landscape elements). Once a conceptual design is completed, computer models can help estimate probable resource and social effects

ENVIRONMENTAL HISTORY

An environmental history of the Adaptive Management Area gives information about past patterns in climate from which vegetative patterns can be projected. Climate–expressed as shifts in temperature and moisture regimes–is a fundamental factor influencing the patterns of vegetation, the distribution of animal species, the hydrologic regimes, fire cycles, and other parts of the Adaptive Management Area ecosystem. Long-term climatic changes are expressed in thousands of years. For the Adaptive Management Area, changes over the last 10,000 years–since the end of the last Ice Age–provide the long-term perspective on climatic variability relevant to this area.

Short-term climatic fluctuations are visible during the course of a human lifetime, and can be measured over hundreds of years. Analysis of past short-term fluctuations provides us with a reasonably predictable range of variation for temperature and moisture regimes for the next 50, 100, or 200 years. Examining long-term and short-term climate patterns is important to understanding what the Adaptive Management Area looked like in the past, and what it might look like in the future.

Question # 1. What were the long-term climatic trends for the Adaptive Management Area over the last 10,000 years? What is the range of variability for species, vegetation communities, fire cycles, and other climate-dependent components of the Adaptive Management Area ecosystem? (In other words, what happens to the ecosystem when the climate becomes generally cooler or warmer over the long-term?) What did the Adaptive Management Area look like 10,000, 7,000, 4,000, 2,000, 1,000 years ago?

Strategies/Actions:

Review existing literature on regional long-term climatic changes to provide a synthesis applicable to the Adaptive Management Area area.

- Identify additional studies, such as fossil and pollen studies, which would provide information more specific to the Adaptive Management Area
- Consider both climatic patterns and human influence on the environment to define ecosystem components (i.e., what the Adaptive Management Area looked like) at different points in the past

Question #2. What are the short-term fluctuations in climate influencing various components of the Adaptive Management Area ecosystem? What did the Adaptive Management Area look like 50, 150, 500 years ago? What is the reasonably predictable range of variability in climate for the next few decades and centuries? Based on changes, such as "extreme weather events" (e.g., major floods, droughts), what effects can be predicted? How can this information help us plan for the future?

SETTING THE STAGE (CONT'D)

ENVIRONMENTAL HISTORY (CONT'D)

Strategies/Actions:

Review existing literature on climatic variability for the region, including historic documents and climate records. Define additional studies, such as tree-ring analyses, which would provide information more specific to the Adaptive Management Area.

- Consider both climatic patterns and human influence on the environment to define ecosystem components (i.e. what the Adaptive Management Area looked like) at different points in the past 500 years
- Define which ecosystem components are dependent upon climatic variability. Describe how these change within the predictable range of climate variation

TERRESTRIAL SYSTEMS

Terrestrial systems encompass the land areas of the watershed. For the purposes of this Guide, we can assume terrestrial systems begin where aquatic systems end. (But, of course the systems are closely entwined and cannot be separated.) Aquatic or riparian systems are often defined by the presence of moisture-loving plants. Geology, soil, hydrology, and landforms provide the structure of the terrestrial systems; plants and animals make up the composition. Interrelationships between the terrestrial and aquatic systems are multiple.

The health of particular vegetation communities provides a "window" to view the health of the overall terrestrial ecosystem. Based on a number of criteria, the forests in the Applegate Adaptive Management Area, and in the watershed as a whole, are not considered "healthy" or fully functioning. (See description of "health" in footnote under "Applegate Adaptive Management Area Goals.") Natural processes that occur in response to high density of trees and drought are at work in the Applegate. These processes are also be considered “healthy” (Broyles, 1997).

The result is a faster rate of death of trees and loss of species (like ponderosa pine) than is desirable or occurred before intervention of fire-suppression.

The extent to which local ecosystems have been altered in the entire watershed can be seen through the use of remote sensing using LANDSAT (satellite) Imagery (*Fuel Hazard and Risk Strategic Assessment within the Applegate Adaptive Management Area*, Forest Service/BLM, 1996). Loss of old-growth habitat primarily from past logging has resulted in less late-successional habitat needed for a diversity of species. Increased growth of dense trees can also be seen over time from satellite imagery and photographs (see Figures 6 and 7).

TERRESTRIAL SYSTEMS (CONT'D)

Current vegetative conditions exhibit the overall decline in both forest health and biological diversity associated with the absence of fire as a disturbance and renewal mechanism (see Appendix G, Map 6). The loss of native Americans from the ecosystem resulted in the loss of frequent fires. Wildfires occurring today in dense trees during summer months are expected to burn intensely, be extremely difficult to extinguish, and result in "stand replacement" (Russell, 1996).

The reintroduction of fire (to reduce fuel hazard and the risk of wildfire while restoring fire-dependent ecosystems) is a key component of any future management in the Applegate Adaptive Management Area. Success will only be accomplished through landscape-level treatments such as thinning trees and reducing fuel hazards. In many areas, these treatments must be done first before prescribed fire can be used safely. A succession of treatments will be needed to achieve the desired vegetative condition that will reduce the long-term potential for high intensity wildfires.

The selective use of mechanical treatments and prescribed burning has been the most biologically and socially acceptable approach to alter the vegetation within the Applegate River watershed on both public and private land (as contrasted with the use of herbicides.) Mechanical treatments include cutting of brush or trees. These efforts require involvement of all stakeholders (people interested in a particular area or issue or both), including the federal land management agencies, state and county fire protection organizations, local residents, and other interested individuals and groups. The challenges of removing fuel hazard in the form of small diameter material is of particular concern. (See Systems, Interagency Organization section for further discussion about commercial timber sales and projects designed to remove small diameter material, as well as ideas under # 8 in this section.)

Note: It is important to reiterate that insects, disease, wildfire, and death are all part of the natural system and are not, in themselves, indicative of health problems. But when the *rate of change* associated with these agents becomes greatly accelerated and the effects are perceived as intense or significant, then the term "catastrophic" is used. Humans have recently altered the environment by suppressing fire over time and space, resulting in an unacceptable or, " unhealthy" condition (Applegate Adaptive Management Area Ecological Health Assessment, 1994.)

TERRESTRIAL SYSTEMS (CONT'D)

Movement toward a more "natural" or healthier balance of vegetation, insects, disease, fire, and other processes is considered beneficial.

The complex interrelationships between the vegetation, water, soil, wildlife, and "disturbance agents" such as fires, floods, and human intervention are described in various assessments, such as the watershed analyses. The reader is encouraged to refer to those completed analyses listed in Appendix A for more detail. For instance, for one interested in more information about wildlife in the Adaptive Management Area, a good reference is "Applegate River Watershed Assessment: Aquatic, Wildlife, and Special Plant Habitat Assessment (1995).

Question #1. How can we learn about improving forest health and test the validity of what we have learned? Specifically, how can we increase vigor of trees across the landscape to increase their vitality and resistance to wildfire, insects, and disease? How can we increase the entire ecosystem's ability to "respond to a variety of stressors, natural and man-made?" (Lackey, 1996).

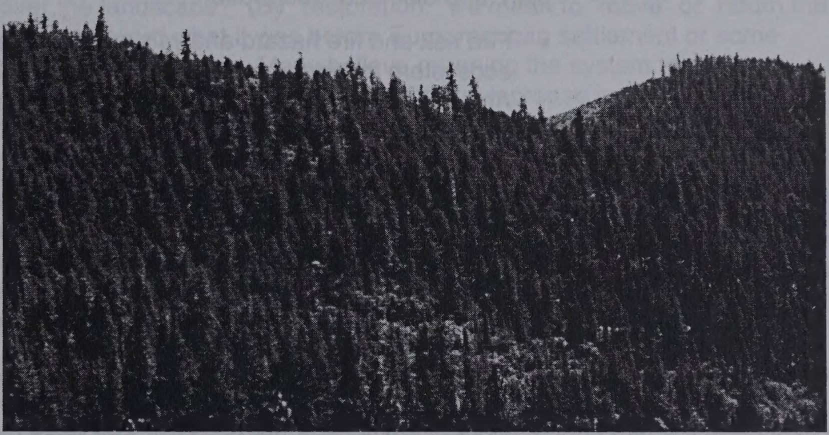
Strategies/Actions:

- Discuss and define forest health, recognizing it includes–but is much more than–tree vigor. Create opportunities for open dialogue about forest health and specific components to monitor forest health. Continue extensive selection-thinning and prescribed burn projects with the objective of leaving a stand of larger trees with more vigor. (See Figures 20 and 21). Find ways to fund the pre-commercial thinning and brushing that is needed. Especially critical are stands with pines, as these are the most vulnerable to bark beetles and wood borer mortality. Develop criteria and indicators for sustainability for the Applegate Adaptive Management Area. (See more discussion in Applied Learning.)
- Design specific landscape treatments (e.g., to thin commercial and non-commercial stands, reintroduce fire) with the intention of increasing the vigor of remaining trees. Treat areas as a whole, including thinning brushfields, oak-woodlands, reintroduce fire where possible, and restore riparian areas. (Past and potential future projects are listed in Appendix B.)
- Use pilot projects, such as those in the Carberry and Humbug areas, to complete inventories and environmental analysis for each landscape through partnership agreement with the Applegate River Watershed Council. Objectives include: finding new ways of doing business while reducing fire hazard and risk in landscapes, creating high levels of community participation, increasing local skills, increasing the odds for innovation, and exploring a variety of funding opportunities to accomplish needed work

TERRESTRIAL SYSTEMS (CONT'D)

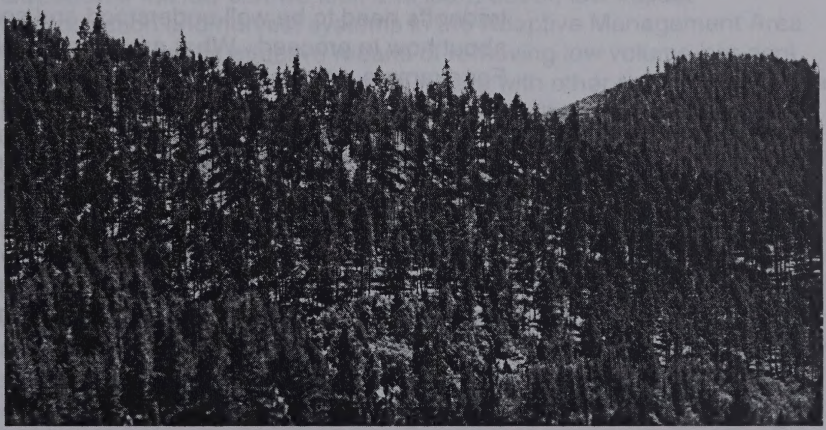
- Establish clear learning objectives and a monitoring program with each prescription to improve future guidelines (e.g., test the effect of thinning to differing basal areas, and canopy closure on the vigor of a stand of trees)
- Landscape Design on various scales needs to plan for retaining some levels of stress in the system, and allowing for disturbance processes (such as fire, insects, and disease)

FIGURE 20.



Stand of trees in the Grubby Sailor Timber Sale (Sterling Creek area) before thinning. (B. Cownover, 1998).

FIGURE 21.



Same stand of trees as in Figure 20 with selected trees removed to increase vigor of remaining pine stand (projected by computer-generated simulation– B. Cownover, 1998).

Question # 2. What can we do to decrease the risk of large-scale high-intensity fires that would threaten life, property, and special habitats?

Strategies/Actions:

Identify areas in the watershed with high fire hazard and those areas at highest risk such as specific dwellings, unique wildlife habitat. Develop a strategic plan to reduce the hazard or risk of fire. Support strong prevention programs with communities emphasizing defensible space and hazard reduction around private property. Work with the State of Oregon Forestry Department, counties, and local fire districts to organize, plan, and distribute information.

- Fire risk and fire hazard analysis will be integrated in all aspects of ecosystem management in the Applegate Adaptive Management Area. Each watershed analysis and landscape project will address fire risk and hazard
- Evaluate highest priority areas considering relevant ecological and social values. Integrate consideration for "survey and manage species" and their habitat requirements. Develop a "values at risk to fire" map for the Applegate Adaptive Management Area–one showing values at risk (such as adjacent private property, special habitats, historic structures) to use in planning projects and in the landscape design. Incorporate citizen involvement and mutual education as part of the project. Treat priority areas to the extent funding and resources allow. Treatments will likely include density management, prescribed fire, manual manipulation of live and dead vegetation, and shaded fuel breaks or defensible fire zones. Treatments will be designed to benefit riparian and terrestrial resources
- Develop shared understanding about what kind, or what magnitude, of decreased risk is worth paying for; the economic and ecological tradeoffs need to be well-understood and some agreement is needed about how to proceed. What are people willing and able to pay for? For example, someone recently quipped, "No problem, we can protect all the homes in the Applegate from fire–just park an engine [used for fire-response] behind every tree!" Of course, that remark was made in jest; it is not realistic or possible to protect all homes. The point is that a great amount of work is needed to increase awareness and understanding about fire hazard and risk including the complex relationships among activities, vegetative conditions, and adjacent lands. Then, private landowners and land management agencies will need to work together to reduce fire hazards

- Develop an interagency suppression plan for the Applegate River watershed. Initiate contact with all critical suppression organizations and develop a strategy to pursue such a plan
- Use prescribed fire as a restorative tool to reduce fire hazard as well as reinvigorate fire-dependent plant and animal communities. Continue use of prescribed fire in a variety of habitats. Aggressively pursue a variety of funding sources

Question # 3. How can we maintain and restore late-successional habitat and the connectivity between those habitats over long periods of time and over the landscape? (By "restoration," we mean to "move" or return the system toward what it was before Euroamerican settlement or some appropriate variation. Many believe returning the system to previous conditions is no longer possible due to the increase in and effects of population. However, movement towards those conditions is, in many cases, desirable.)

Strategies/Actions:

Evaluate the existing (and the potential for) mature and old-growth habitat: Where is it? How is it functioning? And where are the best areas to connect future mature habitat areas? Use this information in landscape projects.

- Seek understanding and agreement about connectivity (what distance and how large a break in connection is acceptable over what time period?). There may be a variety of assumptions that will need testing
- As part of each landscape or watershed analysis, late-successional habitat will be evaluated and recommendations made for future needs. Projects will use this information in alternative design

Question # 4. How can we test, and learn about, low-impact transportation and harvest systems in the Adaptive Management Area that will: (1) provide effective means of removing low volume-per-acre material, (2) integrate transportation needs with other resource objectives (e.g., wildlife, fire suppression), and (3) reduce the number of roads where appropriate?

Strategies/Actions:

Develop a transportation and access plan across the Applegate River watershed that incorporates: design features for connecting desirable habitat across the entire watershed; local watershed protection and rehabilitation; objectives for other resource values (e.g. fire protection, access, and egress), and innovative design features (e.g., temporary low-standard roads) where appropriate. Each landscape project should include transportation and access planning which can then be integrated within a large-scale one.

TERRESTRIAL SYSTEMS (CONT'D)

- Use landscape projects (such as the Buncom Project in Sterling Creek watershed) to experiment and test decommissioning temporary roads after hauling. (Decommissioning is an all-encompassing term which refers to various ways of treating roads when they are no longer being used. Treatments can range from placing fill material in the cutslope and reshaping the original hillslope pattern to simply improving drainage to ensure roadbed stability to avoid future maintenance.)

Question # 5. What can we do to learn more about prescribed burning to meet objectives such as reintroducing fire's role into the ecosystem, encourage late-successional habitat, increase wildlife habitat associated with oak-woodlands, and other fire-dependent systems? How can we gain understanding and support from communities in prescribed burning?

Strategies/Actions:

Continue to plan, implement, and monitor prescribed burning projects to demonstrate effects and increase confidence of people that these can be done safely. Develop workshops and experiences to include communities in reviewing burning plans and monitoring results. We have learned an enormous amount from the successful prescribed burning in the Ashland Creek watershed and more recently within the Applegate and we can apply much of this to the Applegate Adaptive Management Area.

Question # 6. What monitoring measures can we use to evaluate retention of structural and species diversity in thinned stands?

Strategies/Actions:

Wildlife biologists and silviculturists will work together to design specific measures (conditions) to monitor following timber sales. Measures can be reviewed with other scientists and citizens. Continue work in developing criteria and indicators for diversity as well as cooperation with research and administrative studies to learn more.

Question # 7. How can we increase understanding about sensitive species in the Applegate, focus on filling information gaps, and improve management of sensitive species. How can we better understand fragmentation of wildlife habitat across the Applegate River watershed?

Strategies/Actions:

Initiate work with wildlife biologists and botanists from across agencies (Bureau of Land Management, Forest Service, U.S. Fish & Wildlife Service, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, etc.) and watershed councils to outline strategy that might include:

- Identifying individuals who specialize in certain species and ask each to develop updated briefing on species (includes new information since the 1994 Northwest Forest Plan, protocols, information needs, improved management strategies, multi-agency conservation agreements, etc.)

- Developing updated Geographic Information System maps showing known sites of sensitive species and recognizing the sensitivity of this information.
- Assess fragmentation using satellite imagery and computer models such as "Fragstats" or "Habscapes."
- Working with interdisciplinary teams, developing guidance for management and suggestions for appropriate experiments to fill information gaps

For example, working with the Applegate River Watershed Council, a briefing could be developed addressing provisions of the Oregon Salmon Recovery Plan, updated Geographic Information System maps for distribution of specific species of fish, maps of fish passage problems, specific suggestions for voluntary actions which private landowners could initiate, restoration funding opportunities available to private landowners, etc.

Question # 8. What tests and monitoring can we initiate to refine the coarse woody material standards and guidelines for the Applegate Adaptive Management Area? (Coarse woody material refers to the portion of the tree that has fallen or been cut and left in the woods. Usually refers to peices at least 20 inches in diameter.)

Strategies/Actions:

A proposal for adjusting coarse woody material is being explored by the Southwest Oregon Province team (a formal advisory committee set up under the Northwest Forest Plan comprised of individuals from a variety of federal and state agencies and interest groups.) Tests of variations can be designed into projects for monitoring. Coarse woody material standards must recognize the role of historic fire influence.

Question # 9. What special efforts are needed to protect uninfected Port Orford cedar in the Adaptive Management Area from the root disease caused by *Phytopthora lateralis*?

Strategies/Actions:

The pathogen responsible for infecting Port Orford cedar is not native to the United States. The presence of infested Port Orford cedar has been monitored in the Applegate Adaptive Management Area for nearly 20 years. The disease first appeared in the Applegate drainage about 1978. An estimated 1500-2000 acres are infested, which is approximately 25% of the total acres with Port Orford cedar in the Applegate Adaptive Management Area. Protection of the remaining stands by excluding the pathogen is critical.

TERRESTRIAL SYSTEMS (CONT'D)

- Inventory Port Orford cedar occurrence and location of infested and sites free of disease to monitor and plan an effective management program
- Develop a Geographic Information System-based distribution map and make it easily accessible
- Exclude Phytopthora lateralis, where stands of Port Orford cedar occur, by extra measures such as– road closures, gates, barricades, decommissioning, and obliteration
- Develop memoranda of understanding and / or other agreements with Applegate River watershed Councils to map Port Orford cedar occurrence on private lands
- Develop comprehensive / complimentary strategies across objectives.
- Use cost effective monitoring, (e.g. planting Port Orford cedar seedlings in ditchlines to monitor presence of disease
- limit access to sensitive areas to times of dry weather, washing equipment that could be moved from infested areas to uninfested areas, girdling (removing the bark all the way around a tree causing mortality) of Port Orford cedars from buffers below roads where introductions are likely, featuring Port Orford cedars on sites unfavorable to the pathogen (upslope positions, convex slopes, well-drained microsites.)
- Ensure protection of the Pipe Fork Natural Research Area
- Continue efforts such as the one initiated in the Bureau of Land Management's Grant Pass Resource Area intended to protect remaining uninfected trees. Treatments will be preceded by resistance testing to discover those trees that are genetically resistant. A prescription will be written for removal of green Port Orford cedar trees around infested sites.
- Develop a good monitoring plan involving residents as well as scientists

Question # 10. What inventory should be used for snags? (Snags are dead or decaying trees with characteristics which make them suitable for bird, bat, and other wildlife habitat.)

Strategies/Actions:

Develop an adequate snag-monitoring inventory across the various watersheds within the Adaptive Management Area to include key characteristics such as size, numbers, species, decay stage, and spatial arrangement.

TERRESTRIAL
SYSTEMS
(CONT'D)

Question # 11. What can be done to encourage optimal long-term site productivity?

Strategies/Actions:

Conduct a productivity appraisal of typical soils in the Applegate Adaptive Management Area Management Area. This appraisal may be based on assumption that the most productive soils are those with: (1) thick duff cover (fine surface litter), (2) higher percentage of organic matter, and (3) low densities or least resistance to root and water penetration. Use productivity assessment as well as best management practices (BMPS) in the design of all projects.

Question # 12. What can we do to maintain and increase native plant communities? What can we do to slow the spread of non-native species? For instance, what can we do to restore the oak woodlands, grasslands, and pine plant series to more natural conditions (conditions more similar to what existed 1750-1850, before Euroamerican settlement)?

Strategies/Actions:

- Monitor high-risk plant communities. Implement comprehensive program to control spread of non-native species and noxious weeds. Keep in mind the basic rule of occupancy: invaders have a harder time invading an occupied site than a disturbed and open site.
- Work closely with other agencies and the community to control spread of noxious weeds and actively eradicate sites
- Apply limited resources to more sites which could benefit most from treatment
- Use preventative measures to avoid spreading noxious weeds. For instance, when grading roads it is important to avoid spreading seeds outside the existing site by equipment. Avoid creating disturbances adjacent to known noxious weed sites
- Use watershed analyses and landscape projects to identify at-risk plant communities, and design a variety of approaches to test restoration (or rehabilitation)
- Initiate small-scale restoration on wild lands where non-natives have taken over

TERRESTRIAL SYSTEMS (CONT'D)

- Test the effects of burning, seeding, grazing, etc. to learn about interactions with noxious weeds as well as other resources. Also, assess the use of prescribed fire in ways to minimize the spread of non-native species
- Seed with native species (See Figure 22)
- Identify oak-woodlands as part of landscape projects. Use low-intensity prescribed fire on selected sites. Consider seeding native grass, forbs (herbaceous plants that are not grasses), and brush species; plant native tree species such as sugar pine and ponderosa pine if natural seed source is not available

FIGURE 22. NATIVE GRASS SEEDLING ARE PLANTED AT MCDONALD BASIN (D. STEINFELD, 1997)

Question # 13. What can we do to ensure diverse tree species are maintained after any harvesting?

Strategies/Actions:

Planning must include prescriptions for marking and planting, as well as for monitoring. Marking of selective thinning can ensure a percentage of desirable existing species such as hardwood will be retained. Planting prescriptions can identify appropriate amounts of diverse species in the mix.

- Ensure that all marking and planting prescriptions contain diversity goals for various species. The marking guide is used to identify particular trees to be cut or left in a timber sale. Marking can result in retention of desirable hardwoods, as well as conifers, in the stand. Planting would include a mix of desired hardwoods and conifers

Question # 14. How can we promote the vigor and increase the number of large trees? Large, older trees are needed throughout the watershed to increase habitat connectivity.

Strategies/Actions:

At the landscape level, determine desired future condition including distribution of age classes and types of vegetation. Each project will have a silvicultural prescription that identifies amounts and size classes of large trees to be retained. (Silvicultural refers to the care and cultivation of trees.)

- Selectively thin to "speed up" development of stands to late-successional characteristics and monitor variety of approaches for effectiveness. Thinning may be accomplished by cutting or girdling adjacent smaller trees around the large trees by the use of prescribed fire where possible

Question # 15. How can we learn about harvesting, utilizing, and marketing of small materials? What can we do to develop a "value-added" component to timber sales, in which that factor could be used in awarding sales?

Strategies/Actions:

Develop a focused small-materials program that will evaluate the amount of material that needs to be removed to achieve ecosystem management and landscape design objectives; investigate conventional and non-traditional harvesting systems that protect the integrity of resources yet are economically viable; and create partnerships with resource users to initiate utilization opportunities.

- Work with Pacific Northwest Research Station to develop and test an inventory process that will identify the volume and sizes of small-diameter material as part of a short-term (3-5 year) timber sale plan and long-term yield projection
- Experiment with harvesting systems and perform economic analysis of collected data
- Provide technical assistance (including technology transfer) to local wood products industry to facilitate utilization of material.
- Explore on-site processing and/or sorting and perform economic analysis of the collected data

TERRESTRIAL SYSTEMS (CONT'D)

- Continue to support work of the small diameter materials coordinator for the Adaptive Management Area (community relations specialist) participating in the national Small Diameter and Underutilized Species team
- Continue to form partnerships with educational institutions, training centers, agencies, non-profit organizations, and research facilities to add to existing knowledge
- Write and acquire grants to fund collaborative projects

Question # 16. How can we fund the landscape treatments needed?

Strategies/Actions:

We need greater ability to fund restoration projects. There is a growing frustration that current funding and contracting authorities limit ability to "reinvest" receipts from commodities, such as timber harvesting, into the land. A number of possibilities exist, but none are currently legal. See the discussion in Section VI, "Challenges Remaining".

AQUATIC SYSTEMS

The Applegate River watershed is a highly variable aquatic and riparian ecosystem. It supports a wide range of animal and plant species dependent on water. Riparian areas, by definition, are those areas associated with water, especially those zones within which plants grow rooted in the water table (of rivers, streams, lakes, ponds, etc.) Included are large numbers of anadromous and resident salmonid fish, notably fall chinook, coho salmon, winter and summer steelhead trout, rainbow and cutthroat trout. Non-salmonid native fish include Pacific brook lamprey, Pacific lamprey, Klamath small scale sucker, and reticulate sculpin. Fish populations in lakes and reservoirs are often non-native, and provide recreation for many residents and visitors. Other animals associated with water bodies and humid conditions in riparian forests are important indicators of the riparian health–including mammals such as beavers, and otters; birds such as herons, egrets, and winter wrens, and amphibians such as frogs and salamanders.

People depend on the water and floodplains of the Applegate. Agricultural lands use large amounts of water, especially for livestock pasture and crops. The Applegate River has some productive riparian and instream areas. Larger tributary streams (that also provide water for residences and agriculture) have substantially reduced streamflows, shrinking the available wetted habitat during drought months. Applegate Lake releases water during the summer, cooling main river temperatures. Riparian habitats, streams, and wetlands connect through private and public ownership in the watershed.

AQUATIC SYSTEMS (CONT'D)

Most streams in the Applegate River watershed have been altered. Mining, timber harvest, "cleaning" logs out of streams, road building, agriculture and residential construction, and construction of the Applegate Dam have all taken their toll on streams and riparian areas. Riparian areas along watercourses and associated with wetlands are in mixed condition. Fire is probably less frequent in these moist areas. Areas around those upper tributary channels with ephemeral flows can present fire risks from insect infestation, reducing vegetation vigor and growth.

Large-scale analyses of the Applegate River watershed have been completed by interagency teams and the Applegate River Watershed Council (see Appendix A. Completed Studies). More specific watershed analyses have been completed for about 90% of the smaller watersheds within the Applegate River watershed including all key watersheds (Little Applegate, Yale Creek, Beaver Creek, and Palmer Creek). Most non-key watersheds have been analyzed including Middle Fork of the Lower Applegate River, Squaw and Elliot Creeks, Star Gulch, Carberry Creek, Williams Creek, Slate Creek, Cheney Creek, and the Middle Fork of the Upper Applegate River. These are available in the local libraries and from agencies. Each of these analyses provide specific information about conditions and restoration needs within that particular watershed (see Appendix G, Map 9. Analytical Watersheds).

SALMON ISSUES

Survival of anadromous fish is of primary concern. Residents of streams in the Applegate River watershed, the coho salmon has been listed as "Threatened" and the steelhead trout is proposed for listing under the Endangered Species Act. Habitat conditions in the Pacific Ocean, fishing for salmon and steelhead trout, hatchery programs, and environmental changes have contributed to declining numbers of these fish. Forest health (especially along streams and in upland stands) influences stream habitat conditions. Potential risk of introduced warm water fish currently found in the Applegate Lake and in numerous private ponds threatens native fish because the non-native species (like squawfish and bass) prey on juvenile salmonids. The cornerstone for restoring streams on public and private lands is stream bank and floodplain riparian vegetation protection and enhancement. Coho salmon, in particular, require low-gradient alluvial valley stream courses and wetlands containing sediment deposited by flowing water, as in a river bed, flood plain or delta. These habitats are mostly in private ownership.

The Northwest Forest Plan, with its standards and guidelines for activities, addresses the care of riparian reserves and streams on public lands. These guidelines are included in the Aquatic Conservation Strategy of the Northwest Forest Plan, based on the premise that healthy riparian forests and streams will supply diverse habitat for the many riparian species found in Applegate River watershed, including salmon. Recommended critical habitats identified in the Northwest Forest Plan, termed *key watersheds*, are a starting point for priority restoration. Key watersheds include the Beaver Creek, Palmer Creek, Yale Creek, and portions of the Little Applegate River watershed. Additional watersheds identified in the subsequent Applegate Adaptive Management Area Aquatic Assessment as having important habitat for fish include: Thompson Creek, Slate Creek and Cheney Creek, and Williams Creek (see Figure 10, Critical Watersheds in the Applegate River Watershed).

RESTORATION EFFORTS

Riparian forests near wet areas can be rehabilitated. Riparian areas that now have sparse vegetation can be reforested, having a positive effect on stream banks and stream water quality, and benefiting habitat for fish and many other species. Some riparian areas can also benefit from selective thinning of small trees while retaining the larger trees in order to increase the large trees' resilience to insects and fire. Many projects in riparian areas, floodplains and streams are occurring and are now documented in the newsletter, "Streamshare" distributed by the Bureau of Land Management. The Applegate River Watershed Council and private citizens are cooperating with public agencies to identify priority stream habitats. Restoration project location often depends more on landowner willingness than on biological and ecological priorities. Forest Service and BLM managers currently receive funds for watershed restoration on public lands. Current policy and direction for these public lands encourages restoration work in key watersheds. Water quality and anadromous fish habitat issues drive much of the work to improve streams and streamside forests.

FUTURE STRATEGIES

In order for citizens to use natural resources of the Applegate River watershed for their livelihood while sustaining an adequate aquatic and riparian habitat for the flora and fauna of the ecosystem, a high level of coordination and commitment will be required.

People of various skills must develop and implement a working strategy that meshes the needs of people with the interrelationships of animals and plants in their habitats. The linkages that connect streams and adjacent forests to salmon and other water-dependent species cross property lines and ownership. Community leaders, agency directors and landowners must exhibit leadership in communicating often controversial ideas and proposals to all parties. Water quality issues and the health of stream systems affects all people in the Applegate River watershed.

AQUATIC SYSTEMS (CONT'D)

FUTURE STRATEGIES (CONT'D)

We need to ask ourselves a decade from now (and several decades from now): Did we succeed in a protecting the parts of the aquatic and riparian ecosystem that were still working? Did we make a forthright effort to understand better the connection of streams, riparian forests, animals and plants and people? Did we learn from our successes and failures in trying new ideas and methods? Is the quality of life in the Applegate River watershed better today than in previous years? Did we provide adequately for the multitude of plants and animals that reside along and in streams? Are salmon, which are international travelers, returning in sustainable numbers each year to connect the forests and streams of the Applegate River watershed with far-off oceans and seas? The following section summarizes some critical steps clarifying a coordinated approach.

Question # 1. How do we develop a strategy for rehabilitating and protecting riparian and stream habitats?

Strategies/Actions:

Start by pulling together information and identifying critical areas.

- Compile all the known information (stream surveys, fish census, etc.) along with known habitat needs of fish species.
- Identify critical areas:
    - ⇒ critical habitats important to fish and other water-dependent species. Use the recommended critical habitat identified in the Northwest Forest Plan and Aquatic Assessment as a starting point
    - ⇒ stream segments important to anadromous fish, regardless of ownership
    - ⇒ sub-watersheds and smaller drainages that, by their contribution of water quality, food, sediment, etc., are important to the health of forests and streams
- Identify upstream areas on public lands where water quality and stream/floodplain conditions are more near historic conditions. Identify healthy stream and riparian area habitats that occur adjacent to these

FUTURE STRATEGIES (CONT'D)

Fill in the missing information.

- Inventory stream habitat, and take census of fish, amphibian, and other populations as well as their habitat in these areas. Determine how widespread high quality water and favorable habitat conditions are in critical watersheds
- Inventory and assess conditions in critical watersheds and their logical subdivisions, collecting data on present conditions, and monitoring to document changes in habitat conditions
- Stream surveys, riparian surveys, spawning surveys, juvenile fish census, water and riparian temperature monitoring (noting conditions in response stream areas) and other measures will be needed to understand riparian and stream linkages with the upslope forest and watershed

Develop an approach for rehabilitation work. Watershed restoration projects include upslope erosion repair, road drainage repair, road decommissioning (putting the road "to bed"), riparian forest enhancement work, or instream habitat work. Clear watershed restoration goals are needed to maintain or improve habitat.

- Use an approach for restoration that, considers all the factors: channel morphology, large wood, water quality, species present, and importance as a high-quality water source zone
- Coordinate efforts to retain good habitat conditions between public and private lands, using knowledge gained from inventory work and analysis. Use analogous exemplary healthy sites nearby or elsewhere in the Applegate River watershed to understand what is possible in improving degraded areas. Identify human uses and effects that most affect fish and other animals in water courses and riparian areas. These uses will include irrigation water withdrawals, livestock grazing that degrades stream banks and riparian vegetation, draining of floodplains, residential development, and other traditional resource uses that cumulatively have large impacts. Efforts to improve stream and riparian habitat in critical watersheds on private lands will depend on landowner awareness and willingness

Develop strategic action plan for entire watershed from watershed analysis findings, integrating watershed-wide priorities (see responses to the next question about priorities). Actively involve communities in the planning.

Question # 2. Which restoration projects will get highest priority?

Strategies/Actions:

Use the recommended critical habitats identified in the Northwest Forest Plan and Aquatic Assessment as a starting point for priority areas. Then other critical areas in the watershed will be addressed.

FUTURE STRATEGIES (CONT'D)

- Stream segments in watersheds deemed critical for anadromous fish populations will get highest priority. Salmonid fish require the type of specialized high-quality water conditions conducive to many other water-associated species
- Secure the best functioning stream and riparian habitats first, preventing degradation of these refuges, if possible. Actively engage people living in these important drainages to become involved in the process of learning about streams and riparian areas in their neighborhoods. Residents have a great deal of valuable information about local conditions and restoration needs. They must "gain ownership" in the protection and restoration of streams and riparian zones on, and adjacent to, their land if there is to be substantive recovery of habitat
- After securing optimal habitat areas (i.e., those that are functioning well) as a short-term goal, begin long-term repair and rehabilitation of adjacent stream areas to provide connection. This approach should occur simultaneously in several important watersheds and drainage

Question #3. What criteria should be used in considering selective thinning or prescribed burn treatments in riparian areas?

Strategies/Actions:

- Riparian areas are managed to meet the Aquatic Conservation Strategy (as described in the Northwest Forest Plan). Consideration of activities in these areas is made using an interdisciplinary team evaluating the existing situation and desired conditions. Desired conditions include functioning and resilient stream systems for a variety of plant , wildlife, and aquatic species
- Riparian areas are increasingly vulnerable to insects and wildfires when conifers are growing with stand basal areas of 250 to 460 square feet per acre (Applegate River Watershed Assessment: Aquatic, Wildlife, and Special Plant Habitat, 1995). It is also recognized that the basal area can be "taken up" in large trees or small trees. This problem may be greater when there is a higher percentage of small diameter trees in the riparian area. (There is no definition offered here for "small" and "large" trees. That relationship is variable depending on the site.) Selective thinning and / or prescribed burning may be appropriate treatment to reduce density and distribution of trees (including hardwood and conifers) to the desired levels. Such treatments may also be needed to decrease the risk of stand-replacing fire in a riparian area
- Considerations such as the historic and existing plants series, the fire-dependent species associated with the series, and their required habitats are also merited

FUTURE STRATEGIES (CONT'D)

Question # 4. How can agencies work with private landowners (both corporate and individual) and other agencies to achieve common goals?

Strategies/Actions:

- Work closely with watershed councils. Create maps for the public. Put together maps of river systems showing (a) areas of steelhead trout and coho salmon spawning areas, critical coho salmon over wintering areas, water quality areas, etc.; (b) problems in different areas of the watershed (down cutting, sedimentation, over-allocation, loss of side channels, etc.); and where in the watershed it is appropriate to add wood, and/or plant riparian vegetation, and/or create side channels, etc.
- Create educational information for communities. For example, develop illustrated booklets explaining the habitat needs of different fish species (both salmonid and non-salmonid) and their roles in the aquatic ecosystem
- Employ local residents in restoration projects and monitoring
- Involve people living in these important drainage in the process of learning about streams and riparian areas. (See responses to question 5.)
- Fish habitat work on private lands is initiated by the private land owners, the US Fish and Wildlife Service, and the Oregon Department of Fish and Wildlife. Interdisciplinary teams involving these, other agencies, and groups (e.g., Applegate River Watershed Council) could develop plans for channel habitat creation, placement of large wood, etc. Forest Service and Bureau of Land Management involvement on such teams would be limited to consulting (but to the extent feasible, such help is appropriate)
- Agency personnel can offer expertise to collaborative efforts on private land. This kind of cooperation can occur to the extent staff have time and can still meet needs of agency projects.
- Special authority to spend Forest Service or BLM funds on private land is currently possible through Appropriations Bills [P.L.105-83] and [P.L.104-208]. The intent of this authority is to increase opportunities to accomplish work anywhere within the watershed regardless of ownership where such work meets overall ecosystem health goals
- Continue efforts with the Applegate River watershed Council to collaborate on joint federal/private restoration projects, sharing technical expertise, and educational efforts
- Continue and expand joint monitoring efforts of watershed conditions, such as stream surveys and temperature monitoring, with other agencies and the Applegate River Watershed council

FUTURE STRATEGIES (CONT'D)

- Develop educational programs with local schools to display benefits of healthy riparian zones and streams, using exemplary restoration projects on private and agency lands to showcase restoration opportunities

Question # 5. What short-term and long-term monitoring should be done to track success of restoration projects and natural recovery?

Strategies/Actions:

Stream segments and riparian forests in areas to be rehabilitated will be inventoried before and after project work (pre- and post-project monitoring). Continue cooperative monitoring programs with other agencies and the Applegate River Watershed Council. Rather than monitoring all project work, choose sub-samples of different project types and habitats and assess the following:

- habitat conditions in stream and riparian areas before the work, within and without the area designated for treatments (pre-project conditions)
- success of implementing the prescribed restorative action (implementation)
- whether or not the project had the desired short-term effects within the designated area (post-project monitoring)
- track projects in Geographic Information System (GIS);

Strategies/Actions:

Continue post-project monitoring for a suitable time to note changes in stream and riparian habitat as a result of project work and compare with nearby control areas (i.e., "validation" monitoring).

- Post-project monitoring will determine the effectiveness of restoration activities. Management of these unique aquatic and riparian habitats, through experimenting with and adapting various techniques of protection, maintenance and restoration will lead to yield a better understanding of problems and solutions
- Tie in with long-term monitoring as described in the following strategies/Actions

Strategies/Actions:

For long-term monitoring, choose a sub-set of stream segments, both "healthy" areas and restored areas, for long-term monitoring. These long-term areas will serve as reference points. Because stream systems are so dynamic and fish populations fluctuate widely much, we must have a long-term record to compare with our short-term data.

FUTURE STRATEGIES (CONT'D)

Question # 6. What can we do to continue to learn about health and restoration of riparian and aquatic habitat in the Applegate River watershed? For example, how are intermittent streams functioning? Are the riparian reserves (or buffers) currently being retained in projects functioning as expected?

Strategies/Actions:

Learn from projects that are intended to restore upland conditions in order to approximate more closely the historic conditions in the watershed. Learning objectives for these projects need to be clear, and monitoring is essential.

- Implement recommendations from watershed analyses to improve riparian and upland conditions through landscape planning efforts
- In landscape planning, analyze transportation systems and identify opportunities to reduce road densities, improve road conditions, and reduce the impact of roads that affect overall watershed conditions
- Use silvicultural treatments and prescribed fire to treat stands that have less than optimal habitat conditions, thereby increasing tree size, improving species composition, and improving riparian health and vigor, and continue to monitor these projects
- Enhance habitat in intermittent and ephemeral channels that are overstocked to promote forest diversity and improve function
- Design projects with clear learning objectives and monitoring plans in order to collect needed information. Work with the Applegate River Watershed Council, research branches of the Forest Service and Bureau of Land Management, US Fish and Wildlife, other agencies, and groups to develop good study plans to learn about functioning riparian systems.

Strategies/Actions:

Other actions can expand learning:

- Identify upstream areas on public lands where water quality and stream/floodplain information are near historic conditions. Identify healthy stream and riparian area habitats that occur adjacent to these. Use these areas as reference points for observation, education, and scientific study

AQUATIC SYSTEMS (CONT'D)

FUTURE STRATEGIES (CONT'D)

- Continue to fund monitoring
- Identify human uses that most affect fish and other animals
- Work with local landowners (both corporate and individual)
- Be open to new ideas/change. Invite speakers from other areas of the country: What has worked and what has not worked? Share experiences and ideas. Use the Applegate Learning Summaries to record findings (see discussion under Applied Learning)
- Sponsor joint workshops for people in the communities and in the agencies
- Continue to update our data gaps, and search for funding and people to collect information (e.g., cooperative ventures with Southern Oregon State College.)
- Continue to learn about and define capable and optimal habitat and watershed conditions for the Siskiyou Mountains. Share information and findings with other agencies, such as National Marine Fisheries, and the Oregon Department of Fish and Wildlife, and the Applegate River Watershed Council
- Develop and test a variety of in-stream habitat improvement methods for cost effectiveness and habitat productivity

SOCIAL AND ECONOMIC SYSTEMS

As described earlier, the Applegate is an open social system with multiple linkages to the greater region (see Social and Economic Setting). Like ecosystems, social systems are networks of interdependent parts that affect one another so that change in various parts affects all the other parts as well, and (ultimately) the nature of the system as a whole. The social systems of both the Valley and the region are interconnected with natural resources and the federal agencies that manage them. For instance, within the Applegate Valley, values and social relations are mutually interdependent and reinforcing, but changing with the influx of newcomers and changing economic sectors in the region. These changing values and economic activities alter perceptions of the environment which then affect public involvement with local agencies and, ultimately, federal forest management policy.

An example of an impact of ecosystem management upon the social systems might be the shift in management from an emphasis on timber production to restoring ecosystem health (such as through density management).

SOCIAL AND ECONOMIC SYSTEMS (CONT'D)

Forest products have shifted from predominately large to smaller-diameter timber and possibly special forest products such as mushrooms and ferns, impacting local and regional economic systems. Density management activities such as labor-intensive brush clearing and prescribed burning also have had social consequences, the former perhaps drawing from a migrant labor force, the latter producing smoke which might travel to the air-shed of nearby cities. The following section describes the intersection of the Applegate's social, economic and ecological systems.

Most residents express support for a "balanced" approach to forest management and have fair agreement about the elements of such management. A small minority of residents are opposed to any intervention or management of federal lands.

Opposition to clearcuts is widespread, but some level of timber production through selective cutting is desired by most people, according to surveys by the Applegate River Watershed Council and the Rogue Institute of Ecology and Economy (RIEE). Concern about the number of dead and dying trees in the Adaptive Management Area is very high (RIEE, 1994). But widespread agreement about how to decrease the fire hazard and risk is not evident. The recent example of Bureau of Land Management working with residents in the Sterling Creek drainage points out how much we need to know about the environmental history of the Applegate (what did it look like 50, 100, or 200 years ago?) and the implications that knowledge has on the way people are living today.

"Interface" issues (e.g., those issues occurring where people are building homes in what was previously forested or rural land) relate to predators, wildlife, fire hazard (e.g., beetle-killed trees), sources of ignition, water, and grazing. Water issues are current because of the 1980-90's drought. Greater demands on water brought by increased residential development cause concern to the farming community in particular.

A general approach must focus on common goals and move ahead with action. Strategic planning efforts in the Applegate River watershed were conducted by the Rogue Institute for Ecology and Economy. They worked with local neighborhoods to identify goals and specific actions that the communities wants to undertake. People in the agencies can also identify areas of common interest and how to be more responsive to community interests and needs. Where conflict exists, it will require a delicate balance for the agency employees between making it clear that they understand the real issues of the conflict and attempting to resolve them while, at the same time, keeping in mind the need to move ahead with priority actions.

SOCIAL AND ECONOMIC SYSTEMS (CONT'D)

Resolution to many of the social issues discussed are intertwined with those strategies initiated by the federal agencies in the Applegate Adaptive Management Area. One issue is listed here, but most are described in the following Interagency Organization section.

Question # 1. What can we do to create more local employment opportunities?

Strategies/Actions:

Develop more understanding among agency personnel about using a variety of tools (contracts, participating agreements, purchase orders, etc.) to increase local work. Increase use of small contracts where feasible. Explore land service and stewardship contracts for local employment and as incentives for reinvesting receipts.

- Hold innovative contracting/agreements workshop
- Identify a small group of people to develop prototypes of stewardship contracts
- Pursue authority to use land service contracts

Question # 2. How can we increase the effective interaction between citizens interested in the Applegate Adaptive Management Area and agency personnel? How can we better engage the communities in local problem-solving? How can we better include local knowledge in our projects? How can we make collaboration an integral part of our approach to managing in the Applegate?

Strategies/Actions:

See ideas in response to Questions 1-4 in Interagency Organization, Community Participation and Appendix E: Public Involvement Guide.

Question # 3. What can we do to increase opportunities for pre-commercial thinning, harvesting small diameter poles, and firewood cutting?

Strategies/Actions:

See ideas in response to Questions in Interagency Organization, Small Diameter Material.

Question # 4. What future timber sales are anticipated in the Applegate Adaptive Management Area that might affect the economy of the area?

Strategies/Actions:

See ideas in response to Questions in Interagency Organization, Timber Sales and Appendix B.

INTERAGENCY ORGANIZATION

ORGANIZATIONAL EFFECTIVENESS

The two agencies responsible for managing the Adaptive Management Area–the Bureau of Land Management and Forest Service–have been working together in this effort since 1994. As part of the on-going process of adaptive management, an "Organizational Assessment" was initiated in July, 1995. The intent was to gain an outside evaluation of the current approach in the Applegate Adaptive Management Area. How well are we meeting the intent of the Adaptive Management Areas? And what could we do to improve our effectiveness? That document, "An Independent Assessment of the Agencies and Organizations Responsible for Adaptive Management Areas: the Case of the Applegate Adaptive Management Area", highlighted a number of issues. The authors suggested that measures of success need to be identified for Adaptive Management Areas and that the standards of success traditionally used by the agencies are not applicable to these unique areas. Suggested effectiveness measures included:

- Extent to which relationships are improving in their capacity to foster local public problem-solving across organizational, administrative, and jurisdictional boundaries
- Enhancing the ability of agencies to be flexible in the application of standard operating procedures when necessary to achieve Adaptive Management Area objectives
- Encouraging the development of management projects from an experimental philosophy where new ideas are tested, results monitored, and findings translated into new approaches
- Broad inclusion of local knowledge in the development of management project proposals. The source of such local knowledge would include field staff, community members, and scientists with local experience
- Emergence of shared understandings, both within agencies and within the communities, of new ways of doing business

Overall, the review indicated that innovation is occurring. Notable efforts included merging of data across multiple ownership through the Geographic Information System (GIS), interagency collaboration in numerous comprehensive assessments, activities of the research and monitoring team, operation of the interagency management team, and implementation of landscape projects e.g., Lower Thompson Creek Project.

INTERAGENCY ORGANIZATION (CONT'D)

ORGANIZATIONAL EFFECTIVENESS (CONT'D)

Numerous barriers were cited, however, recognizing that many are endemic to bureaucratic organizations. These include lack of shared ownership across the Adaptive Management Area, various perspectives about taking risks and embracing "adaptive management," less progress in community interaction than was expected, and lack of strong leadership or support from higher levels in the agency organizations.

The overall approach to creating change and improvement in the organizations includes a number of strategies including: focusing on desired outcomes, work to overcome barriers in non-threatening ways, add value in every effort towards attaining desired outcomes, attain successes as quickly as possible, reward success well, model desired behavior. We want to show value to the people who exercise these strategies.

Question #1. What can we do to encourage all agency people working in the Adaptive Management Area to act in ways that reflect good adaptive management principles? Adaptive management principles include seeing management as a learning opportunity, (e.g., identifying opportunities to learn, developing a hypothesis and study plan, monitoring, evaluating, and documenting the learning.) How can we encourage the institutions and personnel to become more flexible?, to be part of a "learning organization"? to overcome "institutional inertia?"

Strategies/Actions:

A shared understanding of adaptive management principles is the critical foundation for building future direction. Understanding and gaining confidence in the use of multiple approaches to test policy direction is also essential.

- Leadership must model behavior that encourages learning. Each leader and supervisor in the Adaptive Management Area needs to articulate commitment and support of the Adaptive Management Area goals including use of adaptive management principles. Behavior-specific expectations, objectives, measures of success, needed training, and recognition must be part of the on-going business of the Adaptive Management Area

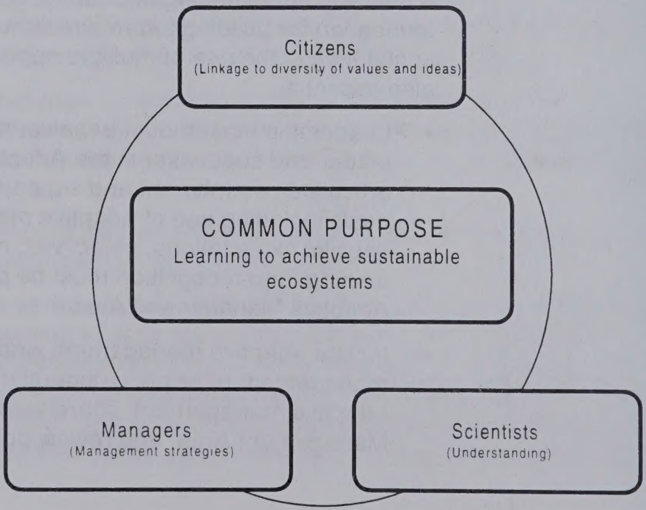
- Initiate adaptive management workshops designed to review adaptive management principles, understand risk taking in the context of adaptive management, share learning across the Adaptive Management Area, and review policy direction and opportunities

INTERAGENCY ORGANIZATION (CONT'D)

ORGANIZATIONAL EFFECTIVENESS (CONT'D)

- Use the model of "citizens-managers-scientists partnership" to accomplish Adaptive Management Area goals and keep the model visible to all people working in the Adaptive Management Area (see Figure 23, Adaptive Management Partnership)
- Reward individuals and groups responsible for overcoming barriers, for contributing toward ecosystem-sustainability goals, for developing comparative models and other applied experiments, and for learning "often requiring painful admission that the initial ideas were incorrect", (Bormann et al., 1996)
- Incorporate criteria related to use of adaptive management principles into the performance standards for each person working in the Adaptive Management Area
- Use the "Applegate Learning Summaries" as a means of sharing what is being learned with others. Put these on the Applegate Home Page for ease of access (Address is: http://id.mind.net/community/app/)
- Continue to describe the adaptive management approach as integral to everything the agencies do, rather than another burdensome thing to "add on" to a full agenda of work
- Seek other means to build trust, both within agencies and between agencies and citizens

FIGURE 23. ADAPTIVE MANAGEMENT PARTNERSHIP


Citizens
(Linkage to diversity of values and ideas)
COMMON PURPOSE
Learning to achieve sustainable ecosystems
Managers
(Management strategies)
Scientists
(Understanding)

"Learning is the common ground in the mutually beneficial relations between citizens, managers, and scientists to achieve sustainable ecosystems" (from *Adaptive Management: Common Ground, Science and Management Ecological Stewardship Book*, Bormann, et. al., 1996).

INTERAGENCY ORGANIZATION (CONT'D)

ORGANIZATIONAL EFFECTIVENESS (CONT'D)

Question # 2. What can we do to increase our ability to strategically manage this area? Is there another way to organize that would be more effective? Do we need an Interagency Liaison? If we do retain separate administrative units, how can we better integrate the whole?

Strategies/Actions:

Compare how the Applegate Adaptive Management Area might be managed under various scenarios (e.g., one interagency leadership team compared to the existing situation of separate teams, or some other combination of these). There are numerous opportunities for developing interagency teams to accomplish work and interagency approaches to communication, research and monitoring, etc.

- Approach institutional learning in a similar way to the biophysical studies. Develop hypotheses and test. Specifically evaluate current institutional approaches (what's working well and what could work better) and identify possible organizational approaches that may be more effective. Develop some measurable criteria to monitor effectiveness. Consider help of community members as well as "third party" or neutral consultants in the evaluation, design, and monitoring.
- Establish a strategic team to develop alternative scenarios for management opportunities. Involve all the agencies in this
    - ⇒ Interagency teams will be created where appropriate for watershed analyses, landscape projects, recreation planning, etc.
    - ⇒ Teams from all units in the Adaptive Management Area will visit projects on other units to accelerate learning and create shared opportunities.
    - ⇒ Increase communication between people working in the Adaptive Management Area through better computer access.
    - ⇒ All significant projects in the Adaptive Management Area will be listed in a consistent database and shared with citizens on a regular basis.

INTERAGENCY ORGANIZATION (CONT'D)

ORGANIZATIONAL EFFECTIVENESS (CONT'D)

Question # 3. What can we do to increase a sense of shared ownership among agency personnel across the Adaptive Management Area?

Strategies/Actions:

Shared ownership is increasing among a number of participants. It seems that those people that have had experience working on joint projects with people from other agencies are increasingly effective in utilizing networks to accomplish other work. (Interagency teams have worked on the Applegate Adaptive Management Area Ecosystem Assessment, Applegate River Watershed Assessment: Aquatic, Wildlife and Special Plant Habitat, Little Applegate Watershed Analysis, Applegate Adaptive Management Area Fire Hazard and Risk Assessment, and others.) Understandably, those having more isolated work experiences have not yet exhibited behavior reflecting shared ownership and commitment to the Adaptive Management Area.

- Continue to identify opportunities for sharing of resources where mutually beneficial, and spread the net to include more people
- Create more opportunities for interagency projects that require agency people to work together on specific outcomes
- Reward initiatives and other exemplary efforts that show shared ownership
- Leadership will continue, or in some situations increase, modeling of shared ownership. ("Actions speak louder than words.")

Question # 4. What actions can we take to better understand the cultural differences between the federal agencies most actively involved in the Applegate Adaptive Management Area (e.g., Bureau of Land Management, Forest Service, US Fish and Wildlife, etc.)? How can we value those differences as well as seek common ground?

- Describe the cultural differences between the BLM, Forest Service, US Fish and Wildlife, and other agencies. Even within the Forest Service branches such as the National Forest system, Research, and State and Private have very different cultures. People would benefit from a better understanding of these differences and ways to bridge between them. Engage social science researchers from research stations and universities in objective analysis and recommendations
- Set up workshops and other forums to discuss differences openly in order to gain understanding and respect. Explore areas of common ground and common vision

Question # 5. How can we gain understanding of appropriate risk management using adaptive management principles within the context of protecting species viability? The burden of decision regarding of species protection is one that many specialists feel is significant.

INTERAGENCY ORGANIZATION (CONT'D)

ORGANIZATIONAL EFFECTIVENESS (CONT'D)

Strategies/Actions:

The intent of the Adaptive Management Areas is to use good science and adaptive management principles which offer learning opportunities "in the face of uncertainty. As described in overall goals of Adaptive Management Area Management Areas, these areas are intended to be “official settings”, to test, validate, and modify the underlying assumptions of the Northwest Forest Plan. The Adaptive Management Areas are expected to test standards and guidelines using scientific rigor.

- Use workshops and other forums to describe adaptive learning principles.
- Test standards and guidelines outlined in the Northwest Forest plan with on-going projects as well as initiating new research projects.
- Share information widely on studies designed to learn about responses of plants and animals. Maintain open and honest dialogue. Describe anticipated effects in terms of short-term versus long-term. Show commitment of leadership to monitoring. Widely share "Applegate Learning Summaries".

Question # 6. How can we add learning and adapting as management goals in the Adaptive Management Area? Can we develop guidelines for project design?

Strategies/Actions:

Learning and adapting are essential components of work in the Adaptive Management Area. A variety of strategies is possible, including short-term learning strategies, long-term learning strategies, and adaptation strategies (Bormann, et al., 1996.) The North Coast Adaptive Management Area developed guidelines that can be modified for use in the Applegate Adaptive Management Area.

INTERAGENCY ORGANIZATION (CONT'D)

GUIDELINES FOR PROJECT DESIGN

Many projects can incorporate learning if that opportunity is designed into the project in the early stages. The following guidelines were adapted from a set developed by the North Coast Adaptive Management Area. These apply equally well to the Applegate Adaptive Management Area.

Incorporate science: Scientific methods can be used in everyday management actions. Scheduling and distributing management activities across the landscape and through time can increase efficiency of learning and increase quality of interpretations for management. The scientific method can be applied to many kinds of management activities–physical, social, and organizational actions. Simply put, the scientific method involves the following process:

(1) Develop hypothesis (record thinking that goes into decisions in the form of statements of anticipated outcomes and assumptions). State objectives and expectations clearly.

(2) Design ways to test these hypotheses (experimental design).

(3) Test (observations or experiments).

(3) Validate results–monitoring (did actions turn out differently than expected?).

Link research to management: Reconstructing the effects of past management actions and natural cycles and events into "retrospective studies" offers excellent opportunities for observational studies. A number of retrospective studies are being done currently in the Applegate Adaptive Management Area in cooperation with the Pacific Northwest Research Station (Forest Service research), Coordinated Forest Ecoystem Research (Bureau of Land Management research), and universities. There are also numerous research opportunities through current and proposed projects. The Adaptive Management Area scientist and research-and-monitoring coordinator will assist interdisciplinary teams in developing good study designs and in coordination with similar projects across the Adaptive Management Area.

Engage communities early in the process: People are interested in projects and want to understand what is going on, why, and in many cases, how they can be more involved. The Applegate Adaptive Management Area has adopted a public involvement strategy that has offers a wide range of opportunities for mutual education and learning (see Appendix E). See also discussion in Systems, Interagency Organization, Community Interaction. There are also numerous opportunities for people to participate in monitoring.

GUIDELINES FOR PROJECT DESIGN (CONT'D)

Frame objectives: The "learning opportunities" (adaptive management objectives) for each project should be clearly stated. For projects in which research and learning are objectives, the implementation plan for the project should describe how the learning objectives will be accomplished. Define learning objectives as part of the purpose and need statements in National Environmental Policy Act efforts. The new learning and adapting goal clarifies the planning objectives, increases the emphasis on monitoring and evaluating to support adaptation, and requires different actions to focus on learning.

Use multiple approaches and controls for comparison: To be evaluated effectively, most projects should have a control with which the effects of management actions can be compared. Controls should be clearly delineated on maps and protected from manipulation for as long as they are useful to the comparison (for example, at least the first 20 years for a thinning project). Ideally, treatment areas should be delineated in a project area first, and controls then randomly selected from among them. Use multiple approaches to test hypothesis where possible.

Projects often involve a single treatment to meet specific objectives. The results of that treatment are monitored and adjustments made over time (see the “Sequential” path in Figure 24, Different Approaches to Projects and Policy-Making). On the other hand, if several treatments are tested concurrently using a good study plan the speed of learning is increased (e.g., “Parallel” path in also in Figure 24.)

Keep treatments simple: It is important to keep the number of different types of activities within a project limited to a few treatments (fewer variables), so that it can be more easily monitored. Otherwise, each unit treated can become a unique case study (without replication), and documentation and delineation of "what was done where" on the ground become more difficult. Simplicity in terms of the number of variables to be compared within a project not only make learning easier, but it makes project design and implementation much easier. Different types of activities can always be tried on different projects.

Document projects: Documentation should consist of a description of each activity, "why, how, and where" it was implemented, and the follow-up needed. Similar documentation methods should be developed for all agencies and a central repository designated for all records (ideally in a readily retrievable electronic format with hard copy backup.) A variety of means to store the information learned will be used (e.g., Internet library, Applegate Learning Summaries, physical Adaptive Management Area library now being maintained at Applegate Ranger District). Keep local libraries stocked with current information such as watershed analysis, as it is developed.

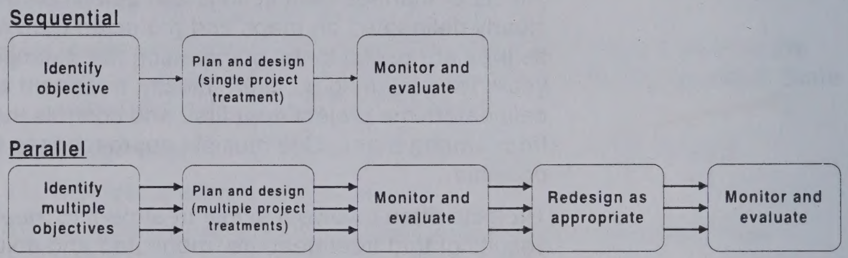
INTERAGENCY ORGANIZATION (CONT'D)

GUIDELINES FOR PROJECT DESIGN (CONT'D)

Monitor: Define a monitoring plan for each project, detailing what must be measured, and when. (What might be measured if resources were able could also be included.) Monitoring should include, at a minimum, a pre-project characterization, a post-project characterization, and some schedule of future measurements. For some objectives, remote sensing (aerial photography or satellite imagery) may be adequate. If monitoring includes field measurements, permanently-marked sample points are strongly recommended. Photographic documentation at such points may be a useful way to show results to others in addition to the quantitative data.

FIGURE 24.

Different Approaches to Projects and Policy-Making


Sequential
Identify objective
Plan and design (single project treatment)
Monitor and evaluate
Parallel
Identify multiple objectives
Plan and design (multiple project treatments)
Monitor and evaluate
Redesign as appropriate
Monitor and evaluate

(adapted from (from *Adaptive Management: Common Ground, Science and Management Ecological Stewardship Book*, Bormann, et. al., 1996.)

COMMUNITY INTERACTION

There has been increasing pressure from community residents to make public involvement efforts initiated by the agencies more effective. Community members want the agencies to be more "responsive." They want federal personnel to be good neighbors and good communicators. They want forest products to become more accessible by reducing red tape and creating opportunities for local employment. Many people want to be involved in the development of projects on federal lands, from the first idea-generating phase, through the alternative design, implementation, and monitoring phases.

Kevin Priester, summarized what Applegate residents told him about how they wish to communicate with federal agencies (Preister, 1995.) The major principles are:

INTERAGENCY ORGANIZATION (CONT'D)

COMMUNITY INTERACTION (CONT'D)

- Direct contact with people is necessary
- Informal contact should be on-going in order to recognize emerging issues
- Institutional memory builds a systematic social understanding over time
- People must understand the implications of proposed change
- They must actively share in decision-making
- They must share responsibility for implementing decisions
- Individuals must be able to track their issues through planning and implementation

Question # 1. What can we do to promote more effective community involvement in the Applegate Adaptive Management Area?

Strategies/Actions:

Forest Service and Bureau of Land Management employees need to be clear about the purpose of involvement and communication. Increase agency understanding of public issue management and how to use formal and informal ways to keep local and other interested people informed about the Adaptive Management Area. Identify and view projects as a way to build the “sense of community," including gathering of local knowledge and concerns, developing options, and increasing capacity through being involved at all stages of the project.

Utilize ideas offered in the Applegate Adaptive Management Area Public Involvement Guide (Appendix E.) Many of the ideas are also emphasized in this section.

- Agency personnel must be genuine in their intent to communicate and involve citizens. (Ideally there is also genuine intent on the part of citizens to be involved.) The need for communication in the Applegate Adaptive Management Area goes far beyond the minimal legal requirements of involving citizens in projects. Social objectives of the Adaptive Management Area cannot be met without meaningful contacts with a variety of people and groups

Benefits of involvement are significant:

⇒ Gaining information and local knowledge;

⇒ Creating better alternatives and solutions;

- ⇒ Getting issues up front and addressing those issues clearly in project planning (rather than trying to address it after the project is planned;
- ⇒ Avoiding conflict, gaining understanding, and often support;
- ⇒ Creating opportunity for citizens to participate in many phases of projects (planning, implementation, and monitoring). Involving citizens in the monitoring and evaluation phases of a project is often weak. There is a great deal to be gained by encouraging active involvement and feedback after projects are completed.
- ⇒ Exploring potential for other sources of funding, such as cost-share agreements to accomplish projects;
- ⇒ Fostering relationships (and, possibly, regaining trust).

- Identify measures of "effective communication" and incorporate into performance standards for all people who are in contact with citizens. Use a variety of approaches for funding, motivation, recognition, and awards to gain widespread use of effective communication tools within the agencies
- Evaluate skills, develop training modules, and offer needed training
- Design projects to include informal and formal communication methods
- Critical to effective communication is understanding the context for the interaction. Agency personnel working with citizens are to consider contextual setting:
  - ⇒ Mistrust (often from past interactions). Ask the questions: Is there any "old baggage" in this neighborhood about past actions? Do we need to acknowledge past mistakes? What are the local issues and how can we address those honestly and clearly?
  - ⇒ Find the right time or position for presenting early information
  - ⇒ Frame the initial proposal when soliciting information. People more often want to know what is being proposed, even if the concepts are still broad
  - ⇒ Put the current project into the long-term/big picture framework wherever possible

INTERAGENCY ORGANIZATION (CONT'D)

COMMUNITY INTERACTION (CONT'D)

⇒ Consider how information is exchanged. Replace technical jargon with common terms. Specialists are expert at technical issues. Some specialists may be less able to communicate those issues with citizens. Use "bridge" people wherever possible (i.e., those people who can communicate concerns of one group of people to another)

⇒ Train individuals to use computer tools (e.g., "Stand Visualization Model", and other graphic simulations) to better display potential changes or alternatives in ways that people can understand (see Figures 20 and 21)

⇒ Field trips are extremely beneficial and offer opportunities for collaboration (see Figure 25). Consider participant's background and capabilities

⇒ For field or other contacts, develop systematic approach to taking notes, tracking specific issues by individuals, and "call-back" or other follow-through may be needed

⇒ Develop and maintain Internet access for ongoing projects

FIGURE 25.

(FIELD TRIP AMONG DIVERSE PARTICIPANTS)

Strategies/Actions:

Use network approach identifying particular agency people to develop and maintain connections with specific neighborhoods.

INTERAGENCY ORGANIZATION (CONT'D)

COMMUNITY INTERACTION (CONT'D)

- Map neighborhoods and identify residents that are interested in being contacts for projects. This is especially important as a network for notices about planned or unplanned events (e.g. fire).
- Identify key contacts in the agencies responsible for linking with each neighborhood
- Make network contacts a part of the individual job

Question # 2. What can be done to increase the educational opportunities about natural resources in the Applegate?

Strategies/Actions:

Explore a variety of means to share natural resource stories. Inherent in this approach is realization that education is a two-way street. Agency personnel involved must be prepared and open to learning from community members as they offer information to community people.

- Define primary issues (e.g., fire and vegetation relationships, wildlife and vegetation, small-diameter trees and economics, native plants and non-natives, etc.) and create communication vehicles to share those stories (before-and-after photos, graphs, video, pamphlets, computerized displays, boards)
- Record the information learned from citizens in a form that can be retrieved by others working in specific areas or on specific topics
- Initiate new education programs for adults and children (e.g., speakers bureau, campfire programs, workshops).
- Support existing programs such as those offered at Cantrall Buckley Park in the summer
- Become more involved with local schools or other training programs. Make education programs a part of a number of people's job duties
- Complete and distribute the assessment of existing education opportunities available in the area and summarize in document. The Central Cascades Adaptive Management Area completed an Education Assessment which could be used as a model
- Continue to improve on-going venues, such as the Applegator newspaper, visitor's information center, Applegate Home Page on the Internet, etc.

COMMUNITY INTERACTION (CONT'D)

Question # 3. How can we ensure involvement by communities of interest and communities of place? Or, in other words, how do we effectively reach regional, national, and international people that might be interested in the Applegate or in the issues, as well as the local people who are more directly associated with the Applegate?

Strategies/Actions:

Use mailing lists and provide frequent mailings. Develop contact list and make personal calls to contacts. Utilize the Internet and posting projects on the web page. Seek other ways (e.g., monitoring) to involve individuals or organizations.

- Explore third-party monitoring or other projects that would include regional and national interests, as well as local people interested in the Applegate Adaptive Management Area

Question # 4. How can we continue to seek collaborative opportunities and not violate the Federal Advisory Committee Act?

Strategies/Actions:

Ensure that opportunities for collaboration are available to all interested individuals and groups, not just a select few. Documenting those opportunities is important.

TIMBER SALE ISSUES

Issues surrounding timber sales have been discussed in many sections of this Guide (see Interagency Organization, Current projects; Landscape Projects, Community Participation, etc.).

Key questions also include:

Question # 1. What should the Applegate Adaptive Management Area be offering as timber volume?

Strategies/Actions:

As mentioned earlier, we still need to do a better job defining terms like sustainability and ecosystem health. Values, criteria, and indicators (with measurable ways to monitor) must be developed through extensive work among agencies with communities (see Applied Learning section).

We also need good models that integrate complex factors of ecosystem health and sustainability (to the extent we can understand and describe), as well as fire and other disturbance factors. Then, such a model could show outcomes such as forest products. Until this is done with a high level of public and agency understanding and support, it is very difficult to answer this key question. In the meantime, we can make some good assumptions based on capability of land and probable sale quantity.

INTERAGENCY
ORGANIZATION
(CONT'D)

TIMBER SALE ISSUES (CONT'D)

Recently the Rogue River National Forest completed a probable sale quantity evaluation to confirm the range of timber volume that is feasible given a number of assumptions (Rogue River National Forest, 1998). The most significant factor is the available acres on which timber cutting is possible. For instance, there are 153,472 acres in the Applegate Adaptive Management Area in the Rogue River National Forest. Of that 84,811 acres, or 55% of the total are considered "available" for timber removal having subtracted acres away due to riparian reserve areas, late successional "core" areas for spotted owls, system roads, etc. Using the Rogue River National Forest example, the other factors such as estimated yield, rotation age, technical difficulties of harvest, etc. resulted in a annual probable sale quantity for the Rogue River National Forest portion of the Adaptive Management Area of 6-8 million board feet. If the inventoried roadless areas (which have an increased sensitivity among some community members) are removed from the available acres, that figure is reduced to 1.5 to 2 million board feet.

The Bureau of Land Management is currently initiating a re-evaluation of their probable sale quantity as of this writing. An analysis will also be done to project timber volumes for the decade. Combined with the Rogue River and the Siskiyou National Forest predictions, one could make more accurate assumptions regarding the probable sale quantity for the Applegate Adaptive Management Area.

At this time it is not possible to separate out the individual units in the the Adaptive Management Area and add them together to give an expected probable sale quantity. The best estimate for the next 5 years is available from the projected sale areas outlined in Appendix B.

Question # 2. What projections can we make for timber sales over the next several years?

Strategies/Actions:

Projections can be made based on what the type of sales have been planned and sold over the last few years and what is anticipated. Past sales from 1994-1998 are displayed in Appendix B, Table A, for sales larger than about .5 million board feet of timber. Future projects are briefly described Appendix B, Table B.

Timber sales since 1994 are summarized by fiscal year in Table 5. A fiscal year runs from October 1 of one year through September 30 of the following year. For example, fiscal year 1994 is 10/1/93-9/30/94.

TABLE 5. TIMBER SALE VOLUME AND ACREAGE SOLD BY FISCAL YEARS 1994-1998.

NOTE: FIGURES FOR 1998 ARE ESTIMATES

Fiscal Year	Total volume sold (millions of board feet)	Estimate of acres (90% selective thinning)
1994	1.3	160
1995	4.9	1,266
1996	39.1	7,497
1997	23.7	3,738
1998	21.2	3,140

Applegate Adaptive Management Area timber sales offered since 1994 are displayed in more detail in Appendix B, Table A). The logging systems included helicopter, cable, and tractor. With the exception of Waters Thin Salvage Sale, timber sales have been averaging approximately 5,000 board feet to the acre to be removed. To give a perspective, these areas generally have about 25-35,000 board feet of timber per acre standing before harvest. The sales are typically thinning "from below" (smaller trees are removed leaving predominantly the larger trees on site). So that after the sale is completed, most of the volume (in the form of large trees) is left in the forest.

Additionally, small sales are created specifically to test harvesting objectives, methods, and to provide smaller sale opportunities for "smaller" operators, e.g., those with few or no employees. A number of small sales (generally less than 100,000 board feet) are sold annually totaling about 1-2 million board feet each year for both agencies combined.

The landscape projects being planned for the future are similar in intent to most of those undertaken in the last years. Concern over declining tree vigor and fire hazard is resulting in landscape projects intended to reduce the density of trees (or "thinning from below"). Typically the projects will also reduce fire hazard in adjacent brushfields, restore oak-woodlands if present, rehabilitate roads, and complete other watershed enhancement projects.

INTERAGENCY ORGANIZATION (CONT'D)

TIMBER SALE ISSUES (CONT'D)

Changes are being made from one project to another based on what is learned in previous projects. And example of this is in "shaded fuel breaks". In the four years from the time of the Lower Thompson Creek Timber Sale to the planning of the Appleseed project, the Bureau of Land Management made numerous refinements in shaded fuel breaks, silvicultural prescriptions, and treatment of brushfields. No longer are shaded fuel breaks inherent in the design of the areas. The change is due to the high level of public concern about how the areas looked following cutting. Additionally objectives have been modified for silvicultural and fuels hazard reduction. Ridge areas may be thinned slightly more than the lower slopes, but more trees are left along ridgelines in current projects.

The brushfields adjacent to the Lower Thompson Creek timber sale had only a few treatment methods. Whereas in the Appleseed project, there are numerous experiments designed to increase learning about these habitats following thinning and use of prescribed fire.

The best projection for the timber sale portion of these future projects is outlined in Appendix B, Table B, and summarized in Table 6. There are many people who have criticized the agencies for not pursuing more aggressively the landscape treatments to reduce fire hazard. Some others have been concerned that the pace is too fast. Hopefully through the research and monitoring built into these projects, we can have a better understanding regarding the pace and type of projects needed.

PROJECTED TIMBER SALE VOLUMES AND AVERAGES (1999-2003)

Estimated ranges are given since these areas have not yet been evaluated.

TABLE 6.

Fiscal Year	Estimated Range of Volume to be Offered (Millions of Board Feet	Estimated Range of Acres to be Treated (90% Selective Thinning)
1999	20.1-27.8	5,681-9,241
2000	14.5-30	5,000-9,295
2001	15.0-30	6,100-11,000
2002	26.0-62	9,090-18,550
2003	13-26	8,300-12,200

SMALL DIAMETER MATERIAL

While agencies and the public realize that a viable forest products industry is necessary in order to restore and enhance both community and forest health, the local forest products industry has demonstrated limited response to the inclusion of small diameter material for primary processing and secondary manufacturing. Excessive costs in harvesting, handling, transporting and processing prevent successful timber sales which are primarily comprised of the small diameter resource.

Question # 1. What are the major constraints facing federal land management agencies and private industry in attempting to develop the small diameter resource? What can be done to overcome these constraints and enhance the region's ability to capture a greater share of the actual value of the resource?

Strategies/Actions:

Develop a small materials program that is comprehensive in nature and extends across boundaries. Incorporate these opportunities early on in the timber sale. The program has five areas of the resource stream that offer both challenges and opportunities:

- **Inventory/Supply:** Industry needs to be assured that an adequate volume and quality of this resource will be available now and in the future. An inventory of the small diameter material by federal land management agencies and qualified partners will yield the data necessary (location, concentration, quality, accessibility) to ensure industry that any capital investments made to utilize this resource will be returned

- **Planning Design:** Timber sales must be designed that are financially accessible to small contractors; economically feasible for large contractors; and achieve ecosystem management objectives

- **Harvesting Methods:** Technologies that will extract the resource with minimum negative impacts to the ecosystem and that are economically viable will be tested; a range of harvest systems that allow both small and large contractors to access resources will be demonstrated

- **Contract Development**: Flexible contracting procedures will be tested that address high management objective/low volume areas of treatment; encourage maximum resource availability; and promote forest management practices which are environmentally sound, economically feasible, and politically stable

SMALL DIAMETER MATERIAL (CONT'D)

- **Distribution:** Various distribution methods have been identified (log sort yards, on-site processing) and are planned for demonstration and analysis
- **Marketing:** The increased production of higher value added products, maximizing both the product value and wood resource, will encourage employment and business growth

The program's first steps involved consolidating existing knowledge, adding new knowledge, and developing a comprehensive vision of future opportunities. A number of projects have been implemented and more are in the planning stages to achieve the goals of the program. Some of them include:

- The Rogue Institute for Ecology and Economy and the Applegate Adaptive Management Area have partnered with Forest Products Laboratory (FPL) to conduct physical property evaluation of small diameter material in relationship to its application for structural use. Currently, the Forest Products Laboratory and the Applegate Community Relations Specialist are developing strategies for outreach and technology transfer of the information generated thus far. The goal of this project is to develop grading systems for round timbers as well as for round wood structural applications
- The Applegate Adaptive Management Area, Pacific Northwest Research Station, Forest Products Laboratory, State & Private Forestry Cooperative Programs (S&PF), and Boise Cascade conducted a study to evaluate the wood quality potential of small diameter material for veneer production. Objectives of the study were to test the hypotheses that 1) characteristics that are measurable with non-destructive techniques in logs can be related to wood product quality, and 2) veneer produced from small diameter material has properties that are suitable for the manufacture of engineered products such as laminated veneer lumber. Initial analysis of non-destructive sampling data indicate that Douglas-fir has better quality characteristics over other species sampled for products such as laminated veneer lumber.
- Further, Pacific Northwest Research Station researchers have conducted lumber recovery studies on the small diameter material from the Colville National Forest which demonstrate a increased recovery of higher grade lumber milled from small diameter logs than from traditional timber. They have a high degree of confidence that, due to the compatible characteristics of the resource, these results can be applied to small diameter material from the Applegate River watershed

INTERAGENCY ORGANIZATION (CONT'D)

SMALL DIAMETER MATERIAL (CONT'D)

- The Applegate Ranger District, Forest Products Laboratory, State & Private Forestry Cooperative Programs, Pacific Northwest Research Station, and Oregon State University Extension Service, and The Department of Forest Products have received a grant from the United States Department of Agriculture Fund for Rural America to define the relationship between the small diameter material resource and value-added manufacturing. Project objectives are to 1)enhance resource utilization efficiency, 2) make it economically viable for secondary manufacturers to utilize small diameter material, and 3) facilitate stand management activities by identifying small diameter timber value. This project is expected to begin in winter 1998
- The Rogue Institute of Ecology and Economy has received a grant from State & Private Forestry Cooperative Programs Rural Community Assistance Program to conduct market research and product development of small diameter material . This project will identify the inventory methods currently used by the federal land management agencies and industrial land owners in Jackson and Josephine counties to determine the amount of the resource; identify the existing and potential primary processors and secondary manufacturers capable of using the resource; and assess the opportunities for new products compatible with the characteristics and properties of the resource. This project is expected to be completed in June of 1998
- A representative from the Applegate Partnership has participated on a national steering committee that has developed the structure and organization of a national center that focuses on under-utilized forest resources. The Forest Products Laboratory has submitted a $4 million grant request to the United States Department of Agriculture Fund for Rural America to establish the center
- Federal land management agencies are currently evaluating individual stands that have been determined as economically challenged for inclusion in demonstration projects. Using existing contract authorities and innovative logging systems, several sales will be constructed and analyzed to determine the optimum scenarios that facilitate the sale of small diameter material on steep (greater than 35%) ground
- Upper Glade pilot project is designed to manage and utilize small sized trees less than 9 inches in diameter to test a variety of harvest, marketing, and utilization methods (see Setting, Interagency Organization, Ongoing projects)

INTERAGENCY ORGANIZATION (CONT'D)

SMALL DIAMETER MATERIAL (CONT'D)

By providing some economic return to offset the costs of ecosystem management, utilizing fiber to capture its highest dollar return can provide economic benefit to rural communities, help conserve limited wood fiber supplies, and help achieve healthy and diverse forests. The Applegate Adaptive Management Area is playing a significant role in addressing a national issue.

Question # 2. What can we do to increase opportunities for pre-commercial thinning, harvesting small diameter poles, and firewood cutting?

Strategies/Actions:

- Increase understanding across agencies that untraditional wood fiber (small diameter poles, etc.) is not viewed by industry as a Special Forest Product and needs to be managed as a unique resource opportunity
- Identify key people responsible for the program and give them the resources to accomplish its objectives
- Encourage the possibility of work with local people in developing innovative approaches to getting small material out of the woods
- Explore the possibility of using Bureau of Land Management permit system (which has considerably more flexibility) in Forest Service projects
- Plan sales that target this resource
- Keep a current mailing list of small contractors and regularly distribute a "Project Update" to communicate upcoming opportunities.

INTERNATIONAL MODEL FOREST PROGRAM

The International Model Forest Program offers a vast opportunity for cooperation and shared learning among many countries. The Model Forests are all pursuing sustainable forest management. Currently there is a limited amount of involvement and funding for participation in this program. However potential benefits from this association are significant–to the Applegate Adaptive Management Area, the other model forests, and the system as a whole. There is also a growing interest among community members living in the Applegate to share information and learning with other communities around the world.

INTERAGENCY ORGANIZATION (CONT'D)

INTERNATIONAL MODEL FOREST PROGRAM (CONT'D)

What are some of the best ways to contribute to the International Model Forest Program and benefit from this association?

Strategies/Actions:

- Continue mutual exchange of issues and ideas through a variety of forums, (e.g. meetings, internet, mailings, etc.)
- Use Internet access to International Model Forests to transfer information more easily
- Identify a key person (or people) in the agencies and in the community to maintain the network and seek opportunities to share information
- Develop specific projects that foster collaboration and sharing of information, e.g., neotropical bird migration, riparian restoration, conflict resolution among diverse citizens, etc.
- Provide for opportunities to host people from other countries (and other Model Forests) to share information

APPLIED LEARNING (RESEARCH AND MONITORING)

Applied learning" is a term that includes both research and monitoring programs and is an overall approach to learning by practitioners. The Applegate Adaptive Management Area approach to research and monitoring is community-based; it is a collaborative model involving citizens, scientists, and managers. The essence of this approach is use of adaptive management principles, or "Do it, learn, and do it better."

BACKGROUND

Each Adaptive Management Area has an assigned scientist from the Pacific Northwest Research Station. The scientist plays a critical role in overseeing and implementing the program in the Adaptive Management Area, in addition to many other duties. Coordination of day-to-day research and monitoring projects in the Applegate Adaptive Management Area is facilitated by a part-time assistant funded by the Forest Service, Bureau of Land Management, and Pacific Northwest Research Station. The coordinator gives direct assistance to project planners; coordinates linkages between project planners, interested community people, and scientists; and maintains the database for all on-going research and monitoring projects in the Adaptive Management Area.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

BACKGROUND (CONT'D)

A current census of agency scientists working in the Applegate River watershed showed many research and monitoring projects in existence or being planned. These projects (Appendix C) range from research studies conducted by university scientists to monitoring projects carried out by agency and community resource specialists. This project listing will be periodically updated, and is available through the Adaptive Management Area Research and Monitoring Coordinator. Information concerning research and monitoring may also be accessed through the Internet on the Applegate Adaptive Management Area Web Page (http://id.mind.net/community/app/). With the implementation of the Rogue River National Forest's IBM computer system, this address will soon be changing. Once the address has changed, all contacts to the address above will be automatically forwarded to the new site address for a transitional period. This effort will also bring a much needed update to Research and Monitoring information accessed on the Web Page.

In 1995, the Applegate Adaptive Management Area Research and Monitoring Team was formed. This is a group of agency and non-agency scientists and individuals, representing a range of disciplines. The objective of this team is to review research and monitoring projects, provide expertise, help with design, and implementation. Field reviews conducted by this team cover a wide range of resource projects and issues and are open to any interested people. Notes from these meetings are included in a quarterly newsletter called *Take a Closer Look*, which is sent to over 200 interested people in the Applegate Valley, regional research community, and local agencies. The notes provide tips for effective monitoring, observations, and discussions of learning opportunities.

In the spring of 1996, the first "Bringing Science Home to the Applegate Valley" workshop was held at Hidden Valley High School. A two-day workshop hosted by the Applegate Partnership and Pacific Northwest Research Station Research Station to share with the community and agencies information about the ecosystem in the Applegate River watershed. The audience included about 400 people, including interested members of the community, federal agencies, and students from southern Oregon high schools. The workshop brought about an increased awareness and interest in research and monitoring in the Applegate.

BACKGROUND (CONT'D)

The sharing of information about "lessons learned" is a significant challenge and a key aspect of applied learning. A one-page format called *Applegate Learning Summary* was initiated summer 1996. All people working in the Applegate Adaptive Management Area are asked to document lessons they have learned. These learning summaries are consolidated and distributed about once a year to interested people.

The Applegate Partnership schedules the fourth Wednesday of each month as a Research and Monitoring theme meeting. This is an excellent forum for presenting and discussing research and monitoring topics, and is open to any interested community members or agency personnel.

Community gatherings provide other opportunities to share and learn. "Community Natural Resource Education Talks", sponsored by the Little Applegate Care Team (Rogue River National Forest) are held the third Tuesday of each month at the Upper Applegate Grange. These talks, which last around one hour, present information on a wide variety of cultural and natural resource topics and are open to all community members. Cantrall-Buckley Park Summer Family Series presents "Critters and Kin of the Rogue", a series of presentations on the cultural and natural history of the Rogue Valley.

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS

The Adaptive Management Areas are specifically identified in the Northwest Forest Plan to "encourage the development and testing of technical and social approaches to achieving desired ecological, economic and other social objectives." As stated in the Forest Ecosystem Management Team report, "Research and monitoring is essential to the success of any selected option to an adaptive management program." Many assumptions in the Forest Ecosystem Management Team report need rigorous testing before they can be widely implemented with certainty.

An assessment of research and monitoring needs for the Applegate Adaptive Management Area was completed summer, (Brock and Hart, 1996). This report provides valuable information pertinent to current monitoring efforts, research and monitoring needs within and across disciplines, and possible strategies to achieve specific project objectives.

The following areas are identified as the highest priority for research and monitoring in the Applegate Adaptive Management Area:

(Note: these are not listed in order of importance.) A complete list of ongoing research and monitoring projects is in Appendix C. Four examples are described in more detail at the end of this section and are closely tied to the priorities listed here (see Adaptive Management Area Research).

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS

- Creating and maintaining late successional forest and riparian habitat conditions
- Reducing fire hazards (effectiveness and integrating with maintenance of desired habitats)
- Increasing the vigor of conifer forests and reducing susceptibility to insect and disease mortality
- Developing effective community participation
- Integrating timber production with wildlife and fishery habitats (including the maintenance of water quality)
- Maintaining soil productivity as indicated by physical and biological soil characteristics
- Inventorying, harvesting, and using small diameter material
- Restoring native grassland, shrubland, and hardwood plant communities
- Developing low-impact logging and transportation systems
- Developing inventories and assessment of a wide variety of forest resources
- Exploring more effective institutional approaches to managing the Adaptive Management Area beyond the traditional agency structures

More detailed discussion of the terrestrial research and monitoring priorities are contained in *A Survey and Assessment of Research and Monitoring Needs in the Applegate River watershed: Terrestrial Ecosystem Elements.*

Question # 1. How can good science be incorporated into agency projects?

Strategies/Actions:

Involve local, province, and regional scientists in the research and monitoring program in the Applegate Adaptive Management Area.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS (CONT'D)

- Use the "Guidelines for Project Design" outlined in the Interagency Organization section. Incorporate the learning objectives within the Purpose and Need statements of the environmental analysis for projects. In the early stages of planning projects in the Adaptive Management Area, individuals and interdisciplinary teams will identify specific learning opportunities that the project can offer. These will be tracked through the Environmental Analysis and Monitoring plan for each project
- Test standards and guidelines of the Northwest Forest Plan using scientific rigor through ongoing and new research projects
- Continue to support the research and monitoring program in the Adaptive Management Area. Encourage agency employees in Pacific Northwest Research Station, Pacific Southwest Research Station, Medford Bureau of Land Management, Rogue River and Siskiyou National Forests as well as university scientists and interested citizens to participate in research and monitoring activities
- Continue to fund an Adaptive Management Area Research and Monitoring Coordinator position. Currently this part time job is multi-financed by Pacific Northwest Research Station, Medford BLM, and Rogue River National Forest
- Continue support of the Applegate Adaptive Management Area Research and Monitoring Team

Good statistical skills are limited among local agency personnel when setting up sound experimental design or monitoring projects. Seek the help of people with high statistical skills on an on-going basis to be available to Adaptive Management Area personnel.

Question # 2. How do we bring more of the community into research and monitoring discussion?

Strategies/Actions:

One of the goals of the Adaptive Management Area is to implement a research-and-monitoring program that is community-based and builds partnerships between communities, researchers, and land managers. A strategy should promote education, technical training, and employment for the local population.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS (CONT'D)

- Continue to support the "Bringing Science Home to the Applegate Valley" program. Encourage more participation of local residents, students, as well as agency resource specialists as speakers and poster presenters
- Pursue the implementation of an "all party monitoring" project which brings various agencies, environmental organizations and community members together in an effort to study current issues surrounding resource management, such as the recovery of at-risk fish species and fire hazard reduction strategies
- Pursue the use of local high school and college students and teachers as well as local (and other interested) citizens in establishing and implementing monitoring projects. Long-term monitoring projects could be implemented cooperatively with a local science teacher, while short-term help could be provided by using individual students. In either case, this might involve exploring creative hiring practices along with changes in school policies
- Continue to support programs such as the Forest Research Experience for Science Teachers program. This 3-year running program, coordinated through Portland State University and funded by the National Science Foundation, provides a 6 week summer institute for middle and high school teachers. The objective of the program is to provide teachers with field-based, hands-on experience in ecosystem research and monitoring. During the six week summer institute teachers develop research or monitoring projects to take back to the classroom for student participation the following school year. The long-term result will be to increase student awareness of scientific and social issues concerning forest ecology, and to develop an increased community commitment to environmental protection and long-term stewardship relationships with the forest
- Continue the Adaptive Management Area research and monitoring team interaction and field trips
- Continue to publish the quarterly newsletter *Take a Closer Look* to interested community members

Question # 3. How do we communicate what we have learned between agencies and community?

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS (CONT'D)

- Continue to publish *Take a Closer Look* quarterly newsletter
- Maintain the World Wide Web Home Page for the Adaptive Management Area which provides a research and monitoring section. Pertinent research-and-monitoring reports along with the quarterly newsletter, *Take a Closer Look*, are included. Applegate Learning Summaries will also be included in the Internet access. (Note: the summaries will be screened for any site-specific information that could result in harm to sensitive species such as location of peregrine falcons nest sites.)
- Use a variety of forums for sharing anything learned in the Adaptive Management Area, whether it is scientific or not. Continue use of one-page learning paper. Initiate workshops to share information among people working in the Adaptive Management Area

Question # 4. How do we support research and monitoring projects and get the most for our money?

Strategies/Actions:

All research and monitoring projects should be coordinated across disciplines and agency boundaries. Greater involvement by interested participants is important to assure the projects are well-designed and implemented correctly.

- Develop research and monitoring strategies for the Adaptive Management Area. Appendix C reflects the broad range of on-going efforts in the area. The assessment, *A Survey and Assessment of Research and Monitoring Needs in the Applegate River watershed - Terrestrial Ecosystem Element*, identifies data gaps in information. In order to make the most of research and monitoring resources, the direction of future projects must be coordinated across all ownership and specialist boundaries
- Determine which funding mechanisms are available to support research and monitoring projects. The Forest Service Pacific Northwest Research Station supported many projects through 1998 (see Appendix C), but the future of such funds are tentative. Other funding sources need to be found

Monitoring of projects accomplished under the Knutson-Vandenberg (K-V) authority can be funded from the K-V account for the Forest Service, but monitoring is not authorized under K-V for the timber sale itself. For Bureau of Land Management, some of these costs may be covered by the Forest Health and Salvage account (5900) if the monitoring is specifically related to tree health.

ADAPTIVE MANAGEMENT AREA RESEARCH AND MONITORING GOALS (CONT'D)

Many other needed monitoring projects must be covered out of other limited operating funds. Some non-federal sources of funding are also available. The Applegate River Watershed Council established a stream survey program based on state funding, while the Rogue Institute of Ecology and Economy completed projects that were supported by grant funds. (See Funding and Other Challenges for more discussion.)

Question # 5. How do we maintain research and monitoring information?

Strategies/Actions:

Pursue different methods of storing research and monitoring information. Previously, the status and description of all research and monitoring projects was maintained in a File Pro Manager database by the Research and Monitoring Coordinator. Exploration of databases that can be linked through the Internet for easier access is underway.

- Continue to support Geographic Information System (GIS) assistance. This multi-funded program coordinates and merges geographic information across the Adaptive Management Area. Most of this information ties directly to research and monitoring projects
- Continue to cooperate with other ongoing efforts to maintain consistent data across multiple ownership such as across all of southwestern Oregon and northern California.

ADAPTIVE MANAGEMENT AREA RESEARCH

Research is the engine that drives the adaptive management cycle. Without the information provided by well-designed and conducted research programs, the results of management "experiments" remain unknown. But rigorous data alone is not sufficient to produce effective adaptive management. Research is just part of an organizational commitment to gather critical information and translate this information into action. Organizational structures are also needed that allow for information to be shared and for practices to be revised. The scientist plays a critical role in overseeing and implementing the research program in the Adaptive Management Area, in addition to many other duties. Thus, the scientist must carefully choose where he or she can be most effective. Ensuring credibility for difficult and complex research questions related to Northwest Forest Plan Standards and Guidelines is a top priority for scientist skills.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

Adaptive Management Areas were selected to provide opportunities for innovation, provide examples in major physiographic provinces, and provide a range of technical challenges, from an emphasis on restoration of late-successional forest conditions and riparian zones to integration of commercial timber harvest with ecological objectives. Standards and guidelines for Adaptive Management Areas are similar to many other land allocations thus there is great opportunity to apply results across the region. Many assumptions in the Northwest Forest Plan need rigorous testing before they can be widely implemented with certainty.

In the Applegate Adaptive Management Area numerous specific research projects are being planned or implemented (see Appendix C). These projects will aid future management in the Adaptive Management Area and will help test important standards and guidelines in the Northwest Forest Plan.

For example, four of these projects are summarized below in more detail than is provided in Appendix C, including their relationship to the attainment of the Adaptive Management Area goals and Northwest Forest Plan objectives.

These research projects relate to the goals and objectives stated earlier in the Adaptive Management Area Guide. In addition, this research has been identified as top research priorities in the Adaptive Management Area Research Survey Assessment and the Applegate Watershed Ecosystem Health Assessment.

PROJECT #1: Examining The Effects Of Prescribed Fire And Fuel Management Strategies In Mixed Habitats Of Southwest Oregon.

NEEDS AND OBJECTIVES

Concern about the increasing potential for catastrophic large scale, high severity fire in the Applegate area has led to a rapid development and implementation of various fuel management strategies. Harvest of merchantable timber and prescribed underburning to achieve fuel management objectives is increasingly being employed. Attempts to quantify the effectiveness of such treatments on a landscape level have begun (e.g., the Applegate River Watershed Forest Simulation Project). However, the effectiveness of various stand-level treatments on wildfire behavior is still far from understood.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

Projected responses of mature trees and effective fire hazard reduction following harvest treatments, remain unpredictable The responses depend on a host of site, stand, individual tree, and treatment-related variables. Research to determine the effectiveness of stand-level treatments in creating viable defensible fuel profile zones is critically needed.

This research will provide resource managers with information on the effects of reintroducing fire, and the tools necessary to manage Applegate forests toward lowering fuel hazards, risks, insect-related mortality, improving stand vigor, and promoting native plants. The research will involve the community in developing and supporting projects and management, and also creates educational and employment opportunities for the community.

RESEARCH PROPOSAL

This research is designed to quantify silvicultural and fire management characteristics of stands currently being treated to produce defensible fuel profile zones in the Applegate area of southwestern Oregon. The stands to be tested are already marked as part of a timber sale(s) being offered by the Medford District Bureau of Land Management. Pre-harvest plots are being established in various units that have been "leave-tree" marked to pre-established basal areas (typically 80 to 100 square feet per acre, plus or minus 20 square feet). Stands with different silvicultural and fire management characteristics can then be compared for responses to these relatively uniform treatments.

Silvicultural and stand data will be in the form of Organon growth and yield plots—20 Basal Area Factor plots delineating species, diameter at breast height, crown ratio, radical growth, and age (for site index). Other stand data to be collected will be data to produce vigor index calculations (sapwood width, last year's radial growth, diameter at breast height, basal area) for individual trees; patterns of radical growth in last 10 years (last five years, previous five years); and effects of tree aggregation ("clumping") on potential for release and/or "shock" (to be measured by a spatial designation such as number of trees and/or basal area within a given distance of a marked "leave" tree). The tendency to "shock" following harvest will be assessed by comparing the above values such as pre and post-harvest tree vigor, changes in radial growth, harvest related percentage reductions in basal area or stand density index, etc.

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

Fire management data to be collected will include the following:

1. Data to determine fire line intensity such as fuel model, percent slopes, fuel loading by size class, fuel depth.
2. Height to crown base of lowest major crown layer.
3. Crown bulk density, as determined by previously measured variables—species, trees per acre, diameter at breast height. Crown bulk density refers to the density of foliage in the trees; it is an indicator of the stand's ability to carry a fire in the tops of the trees.
4. Fire management data collected can then be input into a deterministic fire growth model, such as a model called "FARSITE", to test the effects of various fuel treatments.

WHY THIS RESEARCH IS IMPORTANT

This research will enhance social and ecological innovation. Large scale reintroduction of fire and fuel hazard reduction strategies in the western US requires innovative approaches to the planning and execution of well-designed research and monitoring. Community planning, involvement, and support are essential because of the social controversies surrounding these efforts. The Applegate Adaptive Management Area is ideally suited to provide innovation in a fire dependent ecosystem.

This research relates to clarifying, evaluating, testing, experimenting with the Northwest Forest Plan standards and guides. Catastrophic fire threatens the ecological, economic and social fabric of the Applegate basin and quality of life. The Northwest Forest Plan direction and standards and guidelines focus on riparian values, fish, late successional species and habitat. Yet all of these values are in jeopardy in the current condition of the basin. The Applegate landscape would magnify the destructive energy of stand replacement fires rather than absorb the more positive effects of low intensity fire. Many of the plants and animals in the Applegate are threatened by the suppression of frequent, low intensity fires that shaped the structure and composition the forests of the Adaptive Management Area.

BENEFITS

This approach is key to the successful development and maintenance of healthy, fire resistant forests in southern Oregon and will result in better forest management. It will promote trust and support for research activities in the basin. It will treat harvest prescription as scientifically and community-driven management experiments.

APPLIED LEARNING
(RESEARCH AND
MONITORING)
(CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

Information can help:

- Reduce the risk of catastrophic fire and insect attack
- Improve the safety of lives and property at the forest interfacer
- Encourage the development of vigorous stands and compositional diversity
- Improve the visual and aesthetic character of the landscape
- Promote native, fire dependent or survey and manage species

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PROJECT #2: Growth and development of late-successional and younger Douglas-fir mixed conifer stands in southwest Oregon

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NEEDS AND OBJECTIVES

Provide resource managers with information on the development of late-successional forests and the tools necessary to manage younger forests toward late-successional structure and habitat.

Determine if mortality rates of older trees exceed the rate of replacement.

Determine if low intensity fires and disturbance influence the development of old-growth forests.

Determine in changes in disturbance regimes have resulted in younger forests developing and growing differently than older forests.

Links research efforts across the region with similar research design in Cascades and Coast Range.

GENERAL PROJECT DESCRIPTION

A combination of sampling stratagems will be employed. Existing old stands that have been partially clear-cut will be located using 1939 aerial photographs. Stand structure including understory characteristics and canopy configuration information will be collected. Trends and mortality rates of old trees will be determined. Growth and stand developmental information including density, species composition and decadal growth will be determined from stump measurements in the harvested portion of the stands. Supplemental old tree growth rate information will also be collected. Young stands growing on similar sites will be sampled and comparisons made. Patterns of development will be compared across Applegate sites and Cascade and Coast Range.

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

WHY THIS RESEARCH IS IMPORTANT

Models for developing and maintaining old growth forests developed in the Cascade and Coast Range likely do not fit in southwest Oregon this proposal will greatly increase our understanding of late successional structures and habitats. Without this the results of management experiments remain unknown.

The research proposed directly relates to clarifying, evaluating, testing, experimenting with the Northwest Forest Plan standards and guides. The Northwest Forest Plan direction and standards and guidelines focus on late successional species and habitat. None of this has been rigorously evaluated for southern Oregon. Preliminary observations indicate that applying Northwest Forest Plan direction, and standards and guides in southwest Oregon will fail to achieve the objectives of the Northwest Forest Plan. The proposed research relates to the goals and objectives stated in the Adaptive Management Area Guide.

EXPECTED OUTPUTS

- Determine old tree mortality rates, growth and discussion of potential ramifications
- Analysis of late successional stand development including rates of growth of large old trees, cohort initiation and species composition.
- Information on fire events and trends
- Comparison of young stand development with late successional stand development
- Development of recommendations and models for managing young stands to acquire late successional characteristics in southern Oregon
- Tie and compare with regional studies

BENEFITS

This research is key to the successful development and maintenance of old growth forests in southern Oregon and results in better forest management, promoting trust and support for research activities in the basin. It also translates information into action as scientifically and community-driven management experiments.

PROJECT #3: Examining Riparian Reserves Components of the Northwest Forest Plan for the Klamath Mountain Province of Southwest Oregon.

NEEDS AND OBJECTIVES

The Record of Decision for the Northwest Forest Plan includes guidelines for management of stream communities through the establishment of Riparian Reserves. These were in part designed to maintain viable populations of stream and stream-side organisms. For small streams, Riparian Reserves of 1 or 2 tree-heights were defined for timber sales. However, the effectiveness of these reserves for organisms associated with small streams is largely conjectural. Research addressing the response of stream associated fauna for the Klamath Mountain province is especially lacking.

NEEDS AND OBJECTIVES (CONT'D)

This research will establish the relationship of the structure of the biological community to forest management activities.

This study is an excellent opportunity to address several questions of the basic ecology of aquatic-dependent organisms in headwater habitat, as well as their responses to the land management practices within streamside Riparian Reserves. From a community perspective, aquatic vertebrate assemblages have not been adequately assessed in the past. Basic knowledge of their spatial and seasonal patterns within and along streams in headwater basins will propel ecological innovation in the design and applications of streamside Riparian Reserves.

The work proposed relates to clarifying, evaluating, testing, experimenting with the Northwest Forest Plan standards and guides. Riparian Reserves are one of the more complex and large land allocations in the Northwest Forest Plan and especially for southwest Oregon.

They were designed to attain the watershed scale objectives of the Aquatic Conservation Strategy, yet in southwest Oregon and especially the Applegate Adaptive Management Area, the "one size fits all" nature of the standards and guidelines needs clarification. Do these reserves provide critical refuge or dispersal habitat for terrestrial species? Are these reserves achieving the Aquatic Conservation Strategy of aquatic and riparian habitats? No data addressing the effects of alternative protective Riparian Reserve widths, various thinning regimes within, or the nature of headwater habitats and communities are available in southwest Oregon.

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

Of particular concern is the current condition of many headwater Riparian Reserve areas–dense/stagnant stands, high levels of large-tree mortality, high levels of insect activity and potential for catastrophic fire. Do these reserves provide habitat for riparian and aquatic organisms? Do reserves facilitate the objectives of the Aquatic Conservation Strategy or, over the long-term, degrade and/or put these systems at risk?

EXPECTED OUTPUTS

- Determine the effects of different Riparian Reserve widths and various thinning regimes within and upslope of Riparian Reserves
- Determine the unique aquatic habitats and fauna in reserve areas
- Identify species specific habitat associations
- Identify animal distributions among channels
- Determine use of upslope dry draws above intermittent channels
- Identify different assemblages and conditions between perennial and intermittent streams
- Identify wet/dry season differences in conditions and species distributions

BENEFITS

This approach is key to the successful attainment of the Aquatic Conservation Strategy in the Adaptive Management Area and the southwest Oregon Province. Results in better forest management. Promotes trust and support for research activities in the basin. Translates information into action as scientifically and community-driven management experiments.

Information can help:

- Describe the relative ability of Riparian Reserves to meet Aquatic Conservation Strategy objectives
- Develop methods to integrate findings with site specific recommendations on managing Riparian Reserves
- Determine the response of overstory trees and understory development to thinning activities in Riparian Reserves and its effects on microclimate, habitat, and the development of large-conifers and more vigorous insect and fire resistant stands.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

PROJECT #4: *Lower Thompson Creek and French Gulch Releasability Study.*

NEEDS AND OBJECTIVES

The Northwest Forest Plan direction and standards focus on late-successional species and habitat. This study plan focuses on silvicultural systems that will be used to enhance and maintain late successional forest stands and plant and wildlife species in the Applegate Adaptive Management Area. These types of stands have late successional and old-growth components.

NEEDS AND OBJECTIVES (CONT'D)

They are representative of many forest stands in the Applegate drainage that are currently overstocked and of low-vigor while subject to increased risk to insects, fire and drought effects. The goal of managing these stands is to maintain large conifers and hardwoods in the system while providing continued structure and habitat for wildlife. The study should provide resource managers with information on the effects of the various management treatments.

This study has two replicated blocks on BLM land and one on the Forest Service. The stands being studied are representative of mid-elevation Douglas-fir series located in the Applegate Adaptive Management Area. The Douglas-fir are a result of stand replacing fire events that occurred about 110-120 years ago. There is a ponderosa pine component represented by scattered and individual larger trees that are generally 20-50 years older than the densely stocked Douglas-fir that comprise most of the stand. The pine have survived previous fire events. Many of them have fire scars from that period. Since that time the stands have developed in the absence of fire. Understory species include Pacific madrone, California black oak and another age group of pole and sapling size Douglas-fir. While these stands have late successional components their location and composition do not make them likely candidates for maintaining "old-growth" or late successional structure beyond a stand age of 250-300 years.

APPLIED LEARNING (RESEARCH AND MONITORING) (CONT'D)

ADAPTIVE MANAGEMENT AREA RESEARCH (CONT'D)

NEEDS AND OBJECTIVES (CONT'D)

The three study blocks each have the following:

1. Four density management level treatments;
    - 100 Basal area leave
    - 160 Basal area leave
    - 120-180 Basal area leave with group selections around pine
    - Control-no treatment
2. Three one-quarter acre permanent long term plots
3. Pre-harvest and post-harvest canopy measurements
4. Identified individual ponderosa pines

Other potential studies could include understory response to harvesting and prescribed fire.

WHY THIS RESEARCH IS IMPORTANT

This study relates to evaluating testing and experimenting with silvicultural systems to meet the objectives outlined in the Northwest Forest Plan. The NWFP direction and standards and guidelines focus on late-successional species and habitat. It is supported by the Cooperative Forest Ecosystem Research (CFER) program which involves the BLM and US Geological Survey, Biological Resource Division in western Oregon. This type of study is unique in that its focus is about maintaining vigorous late successional forests in the Applegate where overly dense forest stands have developed as a result of fire suppression. It is a long term study designed to measure tree growth and structural response to thinning treatments while providing a basis for monitoring adaptive management.

- Overstory tree response to density management
- Ponderosa growth and vigor
- Canopy changes and response over time
- Response of shrubs and herbs to thinning treatments
- Potentially, responses to prescribed burning

BENEFITS

The releaseability study will provide a basis for feedback from adaptive management activities. Stand level silvicultural treatments and results from this study apply to landscape level responses within federal or private land ownership in the Applegate Management Area as a whole. This is an opportunity for collaboration across the jurisdictional boundaries in the Applegate River Watershed.

PART 6 — CHALLENGES AND FUNDING ASSISTANCE

CHALLENGES

The goals for the Applegate Adaptive Management Area can be met if commitments of energy, leadership, creativity personnel, and budgets are made, not only from within agencies but also from within communities. This is a significant challenge given limited resources, and yet this is also one of the goals of the Adaptive Management Areas.

In addition to the specific questions that have already been discussed in the Systems section, there are other critical challenges that merit attention.

TREATING THE LANDSCAPE AS A WHOLE

If the agencies are going to do ecosystem management, the landscape must be treated as a whole, not in small parts. This is not to imply that every acre needs to be managed, but the whole landscape needs to be considered rather than the individual stands of trees or other individual sites.

Funding work that does not yield an immediate economic value is the major opportunity and challenge. If an agency enters an area, thins trees (leaving a vigorous stand behind for future generations), but does not treat the adjacent brushfields (which could easily carry a fire directly into the stand), then the investment is a vulnerable one. If the agency does not rehabilitate an eroded portion of a road or restore a stream section while working in the area, the needed work is postponed for accomplishment by the "night shift" and resources are not being protected. This "reinvestment" issue has become a particularly sensitive one among community members in the Applegate River watershed working with the Adaptive Management Area. Funding is needed to treat the "whole" landscape, including such activities as thinning the small diameter material, thinning out brush, and other needed habitat restoration work. Many people refer to this as a "pay-me-now or pay-me-later" situation: the cost of fire suppression, when calculated on a per-acre-basis, often far exceeds the cost of accomplishing the type of work that would greatly decrease the fire hazard

Prudent investment today saves money in the future. This applies not only to fire hazard reduction projects versus future fire suppression costs, but it is also fundamental to maintenance of ecosystems. For instance the cost of maintaining threatened, endangered, or sensitive plant and animal communities is far less expensive than recovery of communities. Or another example is the cost of maintaining functioning riparian areas or soil productivity is a fraction of the cost of rehabilitation.

Appropriated and special funds described in "Funding and Assistance Sources" are inadequate to accomplish the needed maintenance, prevention, rehabilitation, and restoration work.

RESOLVING SPECIES VIABILITY ISSUES

Before the landscapes are treated holistically, there are numerous issues needing to be resolved about species viability. There are significant difficulties in determining short-term loss of wildlife habitat (e.g., thinning areas of known Siskiyou salamanders), versus the long-term viability of that habitat if trees are highly vulnerable to fire and insects. The same issue applies to the 100-acre late successional reserve areas to protect spotted owl nests. In the future, we could possibly be accused of not taking the proper preventative measures to protect special wildlife species. On the other hand, in order to protect the habitat for these species, direction is often interpreted to mean no disturbance, including no thinning of trees. There are no easy answers. It is also possible that some sensitive, threatened, or endangered species may be benefiting from the past 80-100 years of fire suppression which complicates the picture even more.

MEETING THE HIGH LEVEL OF COMMUNITY EXPECTATIONS

Over the last five years, work with the Applegate Partnership and others interested in the Applegate Adaptive Management Area have resulted in many changes for the Bureau of Land Management and Forest Service. One of the most significant change is the level of interaction with citizens in projects and planning. The agencies have been challenged to be more innovative in technical and social approaches. People have come to expect a high level of public involvement and collaboration. Neighbors expect multiple opportunities to go on field trips, have meetings, and collaborate with agency personnel about projects. The cost and time needed for such extensive involvement have not been recognized in current funding (and planning) processes at higher levels in the organizations. Though local levels may request adequate resources, funding is allocated from Congress, from the Washington DC offices, and State and Regional offices in traditional ways using traditional measures (such as amount of timber planned and sold.) This often results in inadequate time-frames for projects and frustrated interactions with the public participants.

ABILITY TO RETAIN A SKILLED WORKFORCE

Both Bureau of Land Management and the Forest Service have committed skilled personnel working in the Applegate Adaptive Management Area under term and temporary appointments. Term appointments are limited by personnel regulations to two-years with extensions not to exceed another two years. Temporary employees are even more limited. No benefits (such as health insurance) are given to temporary appointments. Benefits are possible under "term appointments," but those are limited to four years (two years with only one additional two year extension.) Retaining skilled people for more than a few years and being able to offer them benefits is a critical need.

MEASURES OF SUCCESS

Adaptive Management Areas are "weird critters" compared to areas that the Bureau of Land Management and Forest Service have managed in the past. Not only do we need different approaches to meet Adaptive Management Area goals, but we also need different measures of evaluating success. Traditional methods of evaluating agency accomplishments are insufficient for Adaptive Management Areas. In fact it might be best to throw out the whole notion of success. If the purpose of Adaptive Management Areas is to learn from our mistakes, then "success" needs to be defined paradoxically in terms of mistakes and learning (Stankey and Shindler, 1996).

Suggestions for measures have circulated informally, and there is no agreement about how to approach this topic. In fact some people perceive some risk in defining success in this early stage of adaptive management areas which might inadvertently thwart creativity.

Some factors of success have been identified. The importance of developing working relations with other landowners, stakeholders, interests, and individuals is cited by a number of researchers as a key aspect of Adaptive Management Areas (Shannon, et al, 1996; Stankey and Shindler, 1996).

Some factors to measure might include:

- Relationships (have relationships improved in their capacity to foster local public problem-solving? Have we given credibility to local concerns and knowledge?)
- Common definition of the problems we are trying to solve
- Flexibility (Is there change in standard operating procedures to achieve Adaptive Management Area objectives? What evidence is there for innovation in the organizations or in the communities? Is there willingness to take risks, to accept "failure", and to learn?)
- Evidence of linkages between the Adaptive Management Area and wider social and economic concerns

It may be unrealistic to expect that the Adaptive Management Areas can accomplish sweeping change in a short amount of time given the institutional history (federal and private). But before any substantive evaluation can occur, it will be productive to agree on some ways to measure progress.

FUNDING AND ASSISTANCE SOURCES

"Innovation is expected in developing adequate and stable funding sources for monitoring, research, retraining, restoration, and other activities." (Northwest Forest Plan, 1994.)

Many sources of funding and assistance are currently being used to accomplish work in the Applegate Adaptive Management Area. A partial list includes:

FUNDING AND ASSISTANCE SOURCES (CONT'D)

Challenge Cost-Share Agreements for Forest Service (authorized under the Interior and Related Agencies Appropriations Act of 1992). The Act authorizes the Forest Service to cooperate with other parties to develop, plan, and implement projects that are beneficial to the parties and that enhance Forest Service activities. Projects can be financed with matching funds from cooperators. Cooperators may be public and private agencies, organizations, institutions, and individuals. (Forest Service Manual, 1587.12) This type of agreement was used to fund a portion of the Community Assessment and the Economic Assessment for the Applegate Watershed (see Setting, Social and Economic).

Challenge Cost-Share Programs for Bureau of Land Management (authorized in PL 101-512, 1990 [104 Stat. 1915].) Current interpretation of this authority extends to wildlife, fisheries, recreation, and cultural projects. (If this authority was interpreted to include forestry and fire management projects in the Applegate Adaptive Management Area and in other areas with BLM lands, a number of innovative projects could be initiated.)

Participating Agreements were authorized under the "Uhlman Act" PL 94-148 enabling the Forest Service to enter into agreements with other non-federal participants with shared interest. This act does not apply to BLM. At one time (1985) enabling legislation for BLM to use this same authority was included in a bill, but the "imminent" merger of BLM and Forest Service made this "unnecessary." (Of course, the BLM and Forest Service were not combined into one agency, so the authority was never given to BLM.) Extended authority to BLM would be beneficial to achieving Adaptive Management Area goals. The Forest Service used a participating agreement with the Applegate River Watershed Council in implementing the Carberry Project (see Setting, Interagency Organization, Ongoing Projects).

Collection Agreements are instruments to accept money, equipment, property, or products from a non-Federal party to carry out a purpose authorized by law. These agreements may involve both trust fund collections (advances) and reimbursements. The following Federal laws authorize the Forest Service to enter into these agreements: (Forest Service Manual 1584)

- Cooperative Funds Act of June 30, 1914
- Granger-Thye Act of April 24, 1950
- Acceptance of Gifts Act of October 10, 1978
- Forest and Rangeland Renewable Resources Research Act of 1978, as Amended
- Intergovernmental Cooperation Act of 1968, as Amended
- United States Information and Exchange Act
- Federal Employees International Organization Service Act

FUNDING AND ASSISTANCE SOURCES (CONT'D)

Cooperative Agreements and Grants (vehicles used to transfer money, property, services, or anything of value to a recipient to support or stimulate activities for the public good.) Law enforcement agreements are joint ventures between the agency and local governments, used to enforce state and local laws on lands administered by the Forest Service and Bureau of Land Management. (FS Manual 1581, BLM Handbook 1511-1)

Cooperative Research and Development Agreements are authorized under the Federal Technology Transfer Act. This Act authorizes the Forest Service, where appropriate, to transfer federally owned or originated technology to state and local governments and to the private sector. The Act authorizes an agreement between one or more Federal laboratories and one or more non-Federal parties under which the Forest Service provides personnel, services, facilities, equipment, or other resources with or without reimbursement. This Act does not authorize transfer of funding by the FS to non-Federal parties. The non-Federal parties may provide funds, personnel, services, facilities, equipment, and other resources toward the conduct of specified research and development projects that are consistent with the mission of the FS (Forest Service Manual 1587.14). Cooperative Research and Development Agreements for the Department of Interior managed by the National Biological Service.

Interagency and Intra-agency Agreements (dealing with other federal agencies.) An interagency agreement is used when one Federal agency is in a position to provide materials, supplies, equipment, work, or services of any kind that another agency needs to accomplish its mission. Intra-agency agreements may be used when one district or area is in a position to provide materials, supplies, equipment, work, or services of any kind to another district or area to accomplish its mission. (FS Manual 1585, BLM Manual 5010) (Economy Act 31 U.S.C. 1535 and CFR 17.503). This authority is used extensively in the Applegate Adaptive Management Area between the BLM and FS to gain skills and get work done.

Memorandum of Understanding (MOU) is an instrument used for a written plan between the Federal government and other parties for carrying out their separate activities in a coordinated and beneficial manner and for documenting a framework for cooperation. A letter of intent may be used in place of a MOU only when the activities involve a foreign government and the foreign government will not accept the title of MOU to document a framework for cooperation.

Memoranda of Understanding and letters of intent are not fund-obligating documents and cannot be used when the intent is to exchange funds, property, services, or anything of value.(Forest Service Manual 1586, Bureau of Land Management Manual 1786). Under a MOU or letter of intent each party directs its own activities and uses its own resources.

FUNDING AND ASSISTANCE SOURCES (CONT'D)

The Applegate Adaptive Management Area has MOUs between the Forest Service, Bureau of Land Management, Southern Oregon University, the Applegate Partnership, the Applegate River Watershed Council, Applegate Fire District, and Oregon Department of Forestry.

Jobs in the Woods (focused on employment and training dislocated timber workers.) This is a program created in 1993 as part of the Northwest Economic Adjustment Initiative. Workers earn a family wage plus benefits doing work in year-round ecosystem management jobs. They receive one day of classroom education for every four days of field work. The training is a curriculum provided through various education partners in Oregon. Workers have completed over two million dollars worth of ecosystem restoration projects on lands administered by the BLM and Forest Service in the Applegate Adaptive Management Area since the program began (see Appendix B. Projects, Table C. Watershed Restoration Projects).

The Bureau of Land Management and Forest Service have projects, normally let as one-to-three week contracts, to create a year-long program that requires a wide diversity of ecosystem enhancement skills. These projects include forest stand exams, density management in young stands, management of competing vegetation in plantations, animal damage management, plantation pruning projects, culvert inventory and marking, culvert downspout installation, creation of wildlife trees, planting trees under others in riparian areas, and road decommissioning.

Knutson-Vandenberg Act is a financial tool to fund activities on National Forest System lands following timber sales authorized under the Knutson-Vandenberg Act of 1930, amended by the National Forest Management Act in 1976. This Act is the authority for requiring purchasers of National Forest timber to make deposits to finance sale area improvement activities to protect and improve the future productivity of the renewable resources of forest lands within timber sale areas. Activities include sale area improvement operations, maintenance and construction for restoration, timber stand improvement, range, wildlife and fish habitat, soil and watershed enhancement, and recreation development. Sale area improvement activities must be carried out only on lands with full National Forest status and on lands administered in accordance with the laws, rules, and regulations applicable to National Forest lands. (FS Handbook 2409.19)

A sample of the types of projects that may be performed with Knutson-Vandenberg funding include:

- Plant, seed, or fertilize preferred vegetation to enhance wildlife forage, cover, or range land ecosystems
- Improve fish habitat
- Plant riparian vegetation

- Provide recreation opportunities such as Christmas tree cutting, berry picking, wildlife viewing, and other activities
- Provide interpretative signs or other media to assist the public in understanding management activities
- Establish dispersed camping sites within timber sale area boundaries
- Stabilize areas of soil erosion
- Obliterate unneeded roads in timber sale areas and restore site productivity by ripping, planting, seeding, fertilizing, etc.

The amount of Knutson-Vandenberg funds available for an area depend on the difference between the advertised price of the sale and the amount for which the timber was actually sold. The funds are often not sufficient to cover much of the thinning of small trees, removal of brush, and reintroduction of fire, stream restoration, and other work that is needed to treat entire landscapes. Alternative sources need to be found.

The Bureau of Land Management has no "augmentation" authority, i.e., ability to reinvest any portion of the sale of the timber in the land. Many people have discussed the benefits of extending the Knutson-Vandenberg authority to Bureau of Land Management.

Brush Disposal Funds (BD) permit the Forest Service to use collected funds from a timber sale to treat slash (limbs) created by the sale. BD funds are not authorized for Bureau of Land Management. The cost of the slash work following timber sales is normally reflected in the bid price for the sale and is the purchaser's responsibility to accomplish.

Forest Ecosystem Health & Recovery Fund (5900 Account) for Bureau of Land Management was authorized under the Fiscal Year 1993 Appropriation Act [P.L. 102-381] " for the purpose of planning and preparing salvage timber for disposal, the administration of salvage timber sales, and subsequent site preparation and reforestation." Interpretation includes forest health treatments designed to reduce the susceptibility of forest stands to fire, insect, and disease. The act provides that the Federal share of receipts from the disposition of salvage timber be placed into this account to be used to restore and maintain forest health. It is a carryover account and is closely monitored to insure integrity.

The 5900 fund is used for planning, implementation, and monitoring timber sale projects on Bureau of Land Management lands where the objective of the sale is to reduce susceptibility of the remaining trees to insects, disease, or fire.

FUNDING AND ASSISTANCE SOURCES (CONT'D)

Wyden Amendment Authority: given to the Bureau of Land Management under the Fiscal Year 1996 Appropriations Act [P.L. 104-208] and to the Forest Service under the Fiscal Year 1998 Appropriations Act [P.L. 105-83] for the purpose of authorizing agreements with other land owners and expenditures of federal funds on private lands to improve watershed health. Authority may be used for projects or initiatives having the goal to restore, protect, or enhance ecosystems. The need for and use of this authority is made locally and reviewed at state and regional levels to ensure prudent expenditure for public interest and benefit.

Other appropriated funds are allocated on an annual basis by Congress through Appropriations legislation. These funds are used for the on-going work of administering lands.

ADDITIONAL FUNDING OPPORTUNITIES

A number of alternatives have been proposed to fund needed ecosystem work. Funding comes to each agency in regular appropriations as described. But, for instance, the "Knutson-Vandenberg " funds used by the Forest Service are often extremely limited and do not cover the needed work following a timber sale. Other suggestions have been made which are not authorized under current administrative authorities given to the agencies by Congress. Some of the ideas most frequently discussed are:

Stewardship End Results Contracts. In the Appropriations Bills for 1992 and 1993, a limited number of National Forests were authorized to use receipts, such as from timber sales, to pay for work normally done under land management contracts. The concept is to trade forest products for the services rendered under land management service contracts, such as restoration of streams, wildlife habitat, etc. The authority was not extended in 1994 or later years.

Conservation Management Fund. Another proposal discussed but was not authorized includes developing a new "revolving" fund, i.e., one that allows for receipts from sale of public land resources to return them into programs from which the receipts are generated. The fund would also provide flexibility to include work under a land management contract when the treatment costs exceed the value of the resource removed.

Extension of Knutson-Vandenberg and BD authorities, as well as those under the "Uhlman Act" to the Bureau of Land Management. As discussed earlier, this would offer the BLM similar ability to do a variety of needed treatments following timber sales.

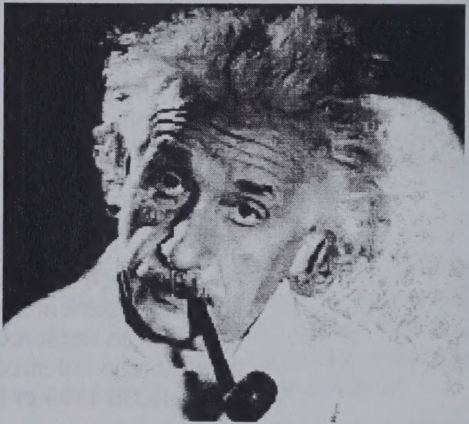
These funds could be financed in a number of ways. Many people are exploring private funding sources to accomplish work on federal lands that is not otherwise funded. Some research and monitoring efforts are being funded by private sources including non-profit organizations and academic institutions. Partnerships between the private and government sectors have been mutually beneficial for gathering information and these kind of arrangements will inevitably expand.

ADDITIONAL FUNDING OPPORTUNITIES (CONT'D)

Note: This discussion of alternative sources of funding is highly abbreviated. The issues and ideas are extremely complex and merit in-depth study. It is not the intent of this Guide to adequately address these issues nor to embrace any one idea or to lobby in behalf of new legislation. But rather, the purpose is to provide a the basic overview of ideas that are surfacing, especially from within the community, to address, for example the "reinvestment" issue. Any serious discussion would include lessons learned from the forests that had pilot authority for stewardship contracts, ways to insure that restoration is not "tied" to timber harvest activities, developing ability for local employment, insuring counties receive a percentage of timber harvest receipts, etc.

WHOEVER UNDERTAKES TO SET HIMSELF UP AS JUDGE IN THE FIELD OF TRUTH AND KNOWLEDGE IS SHIPWRECKED BY THE LAUGHTER OF THE GODS

—A. EINSTEIN—



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APPENDICES

Appendix A: Completed Studies Applegate Adaptive Management Area

A partial list of the studies of the Applegate watershed includes:

- Community Assessment (*Words into Action: A Community Assessment of the Applegate Valley, Rogue Institute of Ecology & Economy*, 5/94)
- *Applegate Adaptive Management Area Ecological Health Assessment* (terrestrial focus, Forest Service & BLM, 9/94)
- *Applegate Watershed Assessment* (Applegate River Watershed Council, 11/94)
- *Applegate Adaptive Management Area Assessment: Aquatic, Wildlife and Special Plant Habitat Assessment* (Forest Service & BLM, 6/95)
- *Applegate Valley Strategic Plan,* (Rogue Institute for Ecology and Economy, 7/97)
- Economic Assessment (*Analysis of Demographic and Economic Aspects of the Applegate Watershed,* Southern Oregon State College, 11/95)
- *Stewardship in the Applegate Valley: Issues and Opportunities in Watershed Restoration,* RIEE, 8/95
- *Applegate Partnership Case Study: Group Dynamics and Community Context,* Victoria E. Sturtevant and Jonathan I. Lange, Southern Oregon State College, 9/95)
- *Applegate Adaptive Management Area Organizational Review* (Victoria Sturtevant, Margaret Shannon, Dave Trask), 12/95.
- *Stories on the Land - An Environmental History of the Applegate and Upper Illinois Valleys,* George McKinley and Doug Frank, 10/95.
- *Overview of the Environment of Native Inhabitants of southwestern Oregon, Late Prehistoric Era,* Reg Pullen, 9/95.
- *An Environmental History of Little Applegate River Watershed,* Jeff LaLande, 1995.
- *A Survey and Assessment of Research and Monitoring Needs in the Applegate Watershed: Terrestrial Ecosystem Elements,* Richard Brock and Richard Hart, 1996.

Other watershed analyses have been completed for watersheds within the Applegate including: Little Applegate, Beaver-Palmer, Middle Applegate, Squaw-Elliot, Williams, Slate/Cheney, Carberry, Star Gulch, and Middle Fork of Applegate River. Several other efforts have been launched by the Applegate River Watershed Council with watershed-wide scope, e.g., aggregate planning and a salmon conservation plan.

Most of these documents are available at local libraries; many are also accessible through the Applegate Home Page (see Appendix F).

Appendix B: Projects

Selection of projects and areas in the Applegate Adaptive Management Area is based on criteria described in the Systems Section of the Guide. The ways in which projects are planned and communities can participate are also discussed throughout the Guide. Interested individuals are encouraged to contact agency personnel for more specific information and maps showing locations for any of the projects listed in Appendix B.

Table A displays information about timber sales that have been offered or are planned to be offered through 1998 in the Applegate AMA.

Future timber sales through 2003 are displayed in Table B. These potential sales are within larger landscape projects and in various planning stages as of this writing. Most projects, and the Environmental Analysis document associated with these landscape projects, will include watershed restoration and other associated projects as well as timber sales. Only the possible timber sale portion of the landscape project is shown in Table B since those acreages are readily accessible. Until specialists review the entire landscape, specific locations of units or other site-specific restoration projects cannot be described.

Extensive restoration has occurred in the Applegate Adaptive Management Area in the last five years. Table C shows an overview of the restoration projects (and some that are planed). This information is displayed by watershed (see Map 9 Analytical Watersheds). Unfortunately we could not include data for restoration projects for the Bureau of Land Management in Table C because the information was not in the same format as that of the Forest Service; time did not permit merging the data. Specialists are currently working toward a common data base between both agencies so that restoration projects can be more easily planned and displayed.

The Applegate watershed has been arbitrarily divided six “analytical” watersheds (see Appendix G, Map 9). Many smaller watersheds occur within each of these analytical watersheds are often associated with neighborhoods. Project descriptions include the location of the project within a specific analytical watershed.

Any project list needs to be updated frequently (every 4-6 months) to be useful. It is by no means a comprehensive list of all activities going on in the AMA.

APPENDIX B
Table A

Timber Sales: Fiscal Years 1994-1998

Over 0.5 MMBF (half million board feet of timber)
Applegate Adaptive Management Area

Timber Sale	Agency	Unit	Adv. or Sale Date	Vol MMBF	Logging Systems	Acres	Average Vol/Acre MBF	Bid Price $/MBF	Purchaser
Ramsey Thin	FS	Galice	'94	1.3	cable	160	10		Superior Lumber
Panther Gap	BLM	Grants Pass	7/95	1.4	hel/cable	337	4	70	Superior Lumber
Ferris-Lane	BLM	Ashland	9/95	1.5	cab/tractor	192	8	396	Boise Cascade
Partnership One	FS	Applegate	10/95, 2/96	1.5	heli	5,911			No bids
Apple-Rum Salvage	BLM	Ashland	9/95, 1/96	2.0	heli	5,580			No bids
Grants Pass Salvage	BLM	Grants Pass	9/95	1.0	heli	737	1.7	84	Superior Lumber
Lower Thompson	BLM	Ashland	11/95	5.4	heli/cable tractor	1,464	3.7	151	Boise Cascade
Hinkle Gulch	BLM	Ashland	3/27/96	2.8	heli/cable tractor	898	3.1	204	Medite

APPENDIX B

Table A

Timber Sales: Fiscal Years 1994-1998

Timber Sale	Agency	Unit	Adv. or Sale Date	Vol MMBF	Logging Systems	Acres	Average Vol/Acre MBF	Bid Price $/MBF	Purchaser
Waters Thin Salvage	FS	Galice	4/30/96	11.7	cable (98%), tractor	750	15.6	149	Rough & Ready 2MMBF hardwood
Beaver/Palmer	FS	Applegate	5/96	3.1	heli	724	4.3	83	Superior Lumber
Middle Thompson	BLM	Ashland	9/29/96	9.6	cable/tractor helicopter	2675	3.6	162	Boise Cascade
Squaw/Elliot	FS	Applegate	9/96	6.5	cable/tractor	986	6.6	84	Boise Cascade
Round Bull	BLM	Grants Pass	2/27/97	2.1	cable, tractor/heli	750	2.9	44	Superior Lumber
Grubby Sailor	BLM	Ashland	7/30/97	8.99	heli/cable	1088	8.3	229	Superior Lumber
Little Applegate	FS	Applegate	8/26/97	3.9	cable/tractor heli	488	8	250	Boise Cascade
Upper Thompson	FS	Applegate	8/26/97	.75	cable/tractor	250	2.9	357	John Wood
Lower Summit	FS & BLM	Applegate & Ashland RA	9/9/97	4.46	heli/tractor	543	8.2	207	Superior Lumber
East Side Thin	FS/BLM	Applegate & Ashland RA	9/30/97	.38	Harvester-forwarder/ tractor	74	5.1	207	John Wood

APPENDIX B

Table A

Timber Sales: Fiscal Years 1994-1998

Timber Sale	Agency	Unit	Adv. or Sale Date	Vol MMBF	Logging Systems	Acres	Average Vol/Acre MBF	Bid Price $/MBF	Purchaser
Sterling Wolf [1]	BLM	Ashland	2/27/98	8.81	cable/tractor	1549	3.7	207	Superior Lumber
North Murphy	BLM	Grants Pass	4/30/98	3.34	cable/tractor/ heli	800	4.2	137	Superior Lumber
Carberry Creek	FS	Applegate	6/98	.79	cable/tractor	152	5.2		John Wood
Port Orford Cedar Sanitation [2]	BLM	Grants Pass	9/24/98	.23	cable/tractor	84			
Silver Fork	FS	Applegate	9/23/98	8.4	cable/tractor/ heli	608			
Poor Bishop [3]	BLM	Ashland	9/24/98	5.8	cable/tractor/ heli	1050			

[1] 3.1 MMBF of this sale was credited to 1997 fiscal year volume, the rest to 1998

[2] This sale is less than the .5MMBF of the others in the table but is of high interest

[3] 2.1 MMBF is credited to 1998 fiscal year volume; 3.7 MMBF credited to 1999

Fiscal year is period from October 1-September 30. Bid prices listed are average prices for all species.

***Acronyms**:*

FS	USDA Forest Service	DN	Decision Notice
BLM	USDI Bureau of Land Management	DN	Vol Volume
MMBF	Million board feet	MBF	Thousand board feet
Adv.	Date sale may be advertised		

Appendix B
Table B

FUTURE TIMBER SALES

Fiscal Years 1999-2003

Applegate Adaptive Management Area

Sale/Project Name	Admin Unit	FY to be Sold	Watershed 5th Field	Type of Treatment	Range of Acres to Treat		Range of volume that could result MMBF		Current Plan MMBF
Wagner	FS Ashland[1]	1999	Upper Applegate	Thinning, Group Select	340	600	1.2	2.2	2000
Beaver Newt	FS Applegate	1999	Upper Applegate	Thinning, Group Select	400	1200	2.0	4.5	3500
Wild Wonder	BLM Grants Pass	1999	Lower Applegate	Thinning	71	71	.314	.314	314
Poor Bishop[2]	BLM Ashland	1999	Middle Applegate	Thinning	1051	1051	3.7 (5.8)	3.7 (5.8)	3.7
Isabella	BLM Ashland	1999	Middle Applegate	Thinning	2113	2113	6.0	8.5	6.0
Sturgis	FS Applegate	1999/ 2000	Upper Applegate	Thinning, Group Select	800	1400	4.0	1.2	8.0

Appendix B

Table B

FUTURE TIMBER SALES

Sale/Project Name	Admin Unit	FY to be Sold	Watershed 5th Field	Type of Treatment	Range of Acres to Treat		Range of volume that could result MMBF		Current Plan MMBF
Scattered Apples	BLM Grants Pass	1999	Williams	Thinning, Group Select	600	1500	1.0	2.0	1.8
Ferris	BLM Ashland	1999	Middle Applegate	Thinning	400	1000	1.5	4.0	2.0
Spencer Loma	BLM Ashland	1999	Middle Applegate	Thinning	400	800	1.0	2.0	1.5
Bug Man	BLM Ashland	2000	Middle Applegate	Thinning	3000	4300	4.5	9.0	6.0
Cougar Ridge	FS Applegate	2000	Upper Applegate	Thinning, Group Select	400	1000	2.0	6.0	3.0
Steve's	FS Applegate	2000	Upper Applegate	Thinning, Group Select	1000	3000	5.0	10.0	6.0
Butterknife	FS Galice	2000	Lower Applegate	Thinning	450	700	1.5	2.5	2.0
Cedar Gap	FS Galice	2000	Lower Applegate	Thinning	150	295	1.5	2.5	2.0

Appendix B
Table B

FUTURE TIMBER SALES

Sale/Project Name	Admin Unit	FY to be Sold	Watershed 5th Field	Type of Treatment	Range of Acres to Treat		Range of volume that could result MMBF		Current Plan MMBF
Upper Glade	FS Applegate	2001	Little Applegate	Thinning, Group Select	500	3000	3.0	8.0	4.0
Bobar	BLM Ashland	2001	Middle Applegate	Thinning	3500	5000	7.0	12.0	7.5
Keller Creek	BLM Ashland	2001	Middle Applegate	Thinning	2100	3000	5.0	10.0	5.0
Lark	FS Applegate	2002	Middle Applegate	Thinning, Group Select	100	400	.30	1.2	.5
Upper Elliot	FS Applegate	2002	Upper Applegate	Thinning, Group Select	400	1000	3.0	8.0	5.0
Upper Thompson	BLM Ashland	2002	Middle Applegate	Thinning,	2600	3500	4.0	10.0	4.0
Prince Beaver	BLM Ashland	2002	Little Applegate	Thinning	2600	3800	5.0	10.0	5.5
Bald Lime	BLM Ashland	2002	Applegate Gulch	Thinning	1300	1900	4.0	7.0	4.0

Appendix B

Table B

FUTURE TIMBER SALES

Sale/Project Name	Admin Unit	FY to be Sold	Watershed 5th Field	Type of Treatment	Range of Acres to Treat		Range of volume that could result MMBF		Current Plan MMBF
China Well	BLM Ashland	2002	Middle Applegate	Thinning	1100	1600	4.0	6.0	4.0
Kinney	FS Applegate	2002	Upper Applegate	Thinning, Group Select	500	5000	2.5	12.0	5.0
Upper Squaw	FS Applegate	2002	Upper Applegate	Thinning, Group Select	400	1200	2.0	6.0	4.0
Ramsey	FS Galice	2002	Lower Applegate	Thinning, Regeneration	90	150	1.2	1.8	1.5
Deadman's Palm	BLM Ashland	2003	Applegate Gulch	Thinning	4800	7000	8.0	16.0	8.0
Bald Lick	BLM Ashland	2003	Little Applegate	Thinning	3500	5200	5.0	10.0	5.0

"Project Names" will often represent more than one or two timber sales once sale planning is complete. Projects and credited volumes could move from one year to another.

***Acronyms**:*

FS	USDA Forest Service
BLM	USDI Bureau of Land Management
MMBF	Million board feet
FY	Fiscal Year (October 1-September 30)

Appendix B

Table C

Restoration Projects

Applegate Adaptive Management Area

BLM projects not shown in this table

Watershed	Project Name	Project Type	Status	Year
Beaver Creek	beaver creek 1989, 92, 94	Riparian Planting	complete	1994
Palmer Creek	Palmer	Instream Structures	complete	1994
Palmer Creek	Palme creek 1989, 92, 94	Riparian Planting	complete	1994
Applegate Lakefront	Applegate lake 1990-1995	Instream Structures	complete	1995
Applegate Lakefront	Applegat lake 1990-1995	Riparian Planting	complete	1995
Beaver Creek	Haskins Gulch Reveg see PC252	Upland Improvements	completed	1995
Beaver Creek	Haskins Gulch Reveg	Upland Improvements	completed	1995
Beaver Creek		Upland Improvements	completed	1995
Beaver Creek		Riparian Planting	completed	1995
Beaver Creek		Riparian Planting	completed	1995
Beaver Creek	Bpe #77/Geo	Upland Improvements	completed	1995
Beaver Creek	Bpe #78/Geo	Upland Improvements	completed	1995
East Fork Williams Creek		upland	completed	1995
East Fork Williams Creek		upland	completed	1995
Lower Little Applegate River		Upland Improvements	completed	1995
Lower Little Applegate River		Riparian Planting	completed	1995
Lower Little Applegate River		Riparian Planting	completed	1995
Lower Little Applegate River		Riparian Planting	completed	1995
Lower Little Applegate River		Instream Structures	completed	1995
Lower Little Applegate River		Instream Structures	completed	1995
Lower Little Applegate River		Road drainage or stabilization	completed	1995
Lower Little Applegate River		Riparian Planting	completed	1995

Watershed	Project Name	Project Type	Status	Year
Lower Little Applegate River		Upland Improvements	completed	1995
Lower Little Applegate River		Upland Improvements	completed	1995
Middle Little Applegate		Road drainage or stabilization	completed	1995
Palmer Creek		Upland Improvements	completed	1995
Palmer Creek		Upland Improvements	completed	1995
Spencer		Riparian Planting	completed	1995
Star Gulch		Upland Improvements	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Upland Improvements	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Upland Improvements	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Thompson Creek		Upland Improvements	completed	1995
Thompson Creek		Upland Improvements	completed	1995
Thompson Creek		Riparian Planting	completed	1995
Upper Little Applegate	Mcd Basin	Upland Improvements	completed	1995
West Fork Williams Creek		riparian	completed	1995
West Fork Williams Creek		upland	completed	1995
West Fork Williams Creek		riparian	completed	1995
West Fork Williams Creek		riparian	completed	1995
West Fork Williams Creek		riparian	completed	1995
West Fork Williams Creek		upland	completed	1995
West Fork Williams Creek		upland	completed	1995

Watershed	Project Name	Project Type	Status	Year
West Fork Williams Creek		riparian	completed	1995
Yale Creek	Mining Road	Road Decommissioning	completed	1995
Yale Creek	Mining Road	Road Decommissioning	completed	1995
Applegate Lakefront	Applegat lake	Instream Structures	complete	1996
Applegate Lakefront	Applegat lake	Instream Structures	complete	1996
Applegate Lakefront	Applegat lake	Riparian Planting	complete	1996
Applegate Lakefront	Applegat lake	Riparian Planting	complete	1996
Beaver Creek		Riparian Planting	completed	1996
East Fork Williams Creek		riparian	completed	1996
East Fork Williams Creek		riparian	completed	1996
East Fork Williams Creek		upland	completed	1996
Lower Little Applegate River		Riparian Planting	completed	1996
Lower Little Applegate River		Riparian Planting	completed	1996
Lower Little Applegate River		Riparian Improvements (Structural)	completed	1996
Palmer Creek		Riparian Planting	completed	1996
Palmer Creek		Riparian Planting	completed	1996
Star Gulch		Riparian Planting	completed	1996
Star Gulch		Riparian Planting	completed	1996
Steve Fork Creek	Steve fork	Riparian Planting	complete	1996
Thompson Creek		Upland Improvements	completed	1996
Thompson Creek		Riparian Planting	completed	1996
Thompson Creek		Riparian Planting	completed	1996
Upper Little Applegate	Tid-1	Upland Improvements	completed	1996
Upper Little Applegate	Mcd Basin	Upland Improvements	completed	1996
West Fork Williams Creek		Riparian Planting	completed	1996
West Fork Williams Creek		riparian	completed	1996

Watershed	Project Name	Project Type	Status	Year
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		upland	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		upland	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		riparian	completed	1996
West Fork Williams Creek		upland	completed	1996
West Fork Williams Creek		upland	completed	1996
Yale		riparian	completed	1996
Applegate Lakefront		Riparian Planting	completed	1997
Applegate Lakefront	Applegate Lake	Lake habitat improvement	completed	1997
Applegate Lakefront	Applegat lake	Instream Structures	complete	1997
Applegate Lakefront	Applegat lake	Riparian Planting	complete	1997
Applegate Lakefront	Applegat lake	Instream Structures	complete	1997
Applegate Lakefront	Applegat lake	Riparian Planting	complete	1997
Beaver Creek	Haskins Demo see PC25195	Upland Improvements	completed	1997

Watershed	Project Name	Project Type	Status	Year
Beaver Creek	Haskins Demo	Upland Improvements	completed	1997
Beaver Creek	Beaver Creek	Road Drainage and Stabilization	completed	1997
Beaver Creek	Beaver Spur	Road Drainage and Stabilization	completed	1997
Beaver Creek	Hanley Hak.	Road Drainage and Stabilization	completed	1997
Beaver Creek	Haskins	Road Drainage and Stabilization	completed	1997
Beaver Creek	Hanley Road	Road Drainage and Stabilization	completed	1997
Carberry Creek	Star Gulch Road	Road Drainage and Stabilization	completed	1997
Carberry Creek	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Carberry Creek	Whisky Ridge	Road Drainage and Stabilization	completed	1997
East Fork Williams Creek		riparian	completed	1997
East Fork Williams Creek		riparian	completed	1997
East Fork Williams Creek		Riparian Planting	proposed	1997
Glade Creek	Little Red	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Glade Creek	Road Drainage and Stabilization	completed	1997
Glade Creek	Garvin Spur	Road Drainage and Stabilization	completed	1997
Joe Creek	Cook & Green	Road Drainage and Stabilization	completed	1997
Joe Creek	Cook & Green	Road Drainage and Stabilization	completed	1997
Joe Creek	Joe Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Slide below 1099	Upland Improvements	completed	1997
Lower Elliott Creek	Mid. Fk. App.	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997

Watershed	Project Name	Project Type	Status	Year
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Cook & Green	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Cook & Green	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Scraggy Road	Road Drainage and Stabilization	completed	1997
Lower Elliott Creek	Scraggy Road	Road Drainage and Stabilization	completed	1997
Lower Little Applegate River		Riparian Planting	completed	1997
Lower Little Applegate River		Riparian Planting	completed	1997
Lower Little Applegate River		Riparian Improvements (Structural)	completed	1997
Lower Little Applegate River		Upland Improvements	completed	1997
Lower Little Applegate River		Riparian Planting	completed	1997
Lower Little Applegate River		Riparian Planting	completed	1997
Lower Little Applegate River		Riparian Planting	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997

Watershed	Project Name	Project Type	Status	Year
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Whisky Ridge	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Mid. Fk. App.	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Mid. Fk. App.	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Mid. Fk. App.	Road Drainage and Stabilization	completed	1997
Middle Fork Applegate Riv	Mid. Fk. App.	Road Drainage and Stabilization	completed	1997
Middle Little Applegate		Riparian Planting	completed	1997
Middle Little Applegate		Riparian Planting	completed	1997
Middle Little Applegate R	Glade Creek	Road Drainage and Stabilization	completed	1997
Obrien Creek	OBrien Creek	Road Drainage and Stabilization	completed	1997
Palmer Creek		Riparian Planting	completed	1997
Palmer Creek	Kinney Creek	Road Drainage and Stabilization	completed	1997
Palmer Creek	Kinney Spur	Road Drainage and Stabilization	completed	1997
Squaw Creek	Squaw Creek	Road Drainage and Stabilization	completed	1997
Squaw Creek	Squaw Creek	Road Drainage and Stabilization	completed	1997
Squaw Creek	Squaw Creek	Road Drainage and Stabilization	completed	1997
Squaw Creek	Squaw Creek	Road Drainage and Stabilization	completed	1997
Squaw Creek	French Gulch	Road Drainage and Stabilization	completed	1997
Squaw Creek	French Gulch	Road Drainage and Stabilization	completed	1997
Squaw Creek	French Gulch	Road Drainage and Stabilization	completed	1997
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997

Watershed	Project Name	Project Type	Status	Year
Squaw Creek	Summit Ridge	Road Drainage and Stabilization	completed	1997
Squaw Creek	Squaw Serv.	Road Drainage and Stabilization	completed	1997
Squaw Creek	Upper Squaw	Road Drainage and Stabilization	completed	1997
Squaw Creek	Maple Dell	Road Drainage and Stabilization	completed	1997
Star Gulch		Riparian Planting	completed	1997
Steve Fork	Steve side channel development	Instream Structures	complete	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Steve Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Low Gap	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Low Gap	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Right Hand Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Right Hand Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Right Hand Fork	Road Drainage and Stabilization	completed	1997
Steve Fork Creek		Road Drainage and Stabilization	completed	1997
Steve Fork Creek	Left Hand Rd	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Steamboat Mtn.	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Sturgis Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Sturgis Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Sturgis Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Sturgis Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Bigelow Bridge	Road Drainage and Stabilization	completed	1997

Watershed	Project Name	Project Type	Status	Year
Sturgis Fork Creek	Miller Lake	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Miller Lake	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Bigelow Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Bigelow Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Bigelow Creek	Road Drainage and Stabilization	completed	1997
Sturgis Fork Creek	Bigelow Creek	Road Drainage and Stabilization	completed	1997
Thompson Creek		Riparian Planting	completed	1997
Thompson Creek		Riparian Planting	completed	1997
Thompson Creek		Riparian Planting	completed	1997
Thompson Creek		Riparian Planting	completed	1997
Upper Elliott Creek	Elliott Creek	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Bypass	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Bypass	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Bypass	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Bypass	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Bypass	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Alexis Spur	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Elliott LS	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Elliott LS	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Elliott LS	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Elliott LS	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Elliott LS	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Maple Dell	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Maple Dell	Road Drainage and Stabilization	completed	1997
Upper Elliott Creek	Maple Dell	Road Drainage and Stabilization	completed	1997
Upper Little Applegate	Little Applegate	Instream Structures	complete	1997

Watershed	Project Name	Project Type	Status	Year
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Canal Rd	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Brickpile	Road Drainage and Stabilization	completed	1997
Upper Little Applegate Ri	Brickpile Sp	Road Drainage and Stabilization	completed	1997
Yale		Riparian	completed	1997
Yale Creek		Riparian Planting	completed	1997
Yale Creek	Yale Cr. Rd.	Road Drainage and Stabilization	completed	1997
Yale Creek	Yale Spur	Road Drainage and Stabilization	completed	1997
Yale Creek	610 Spur	Road Drainage and Stabilization	completed	1997
Yale Creek	Lwr Deadman	Road Drainage and Stabilization	completed	1997
Applegate Lakefront	Applegat lake	Instream Structures	complete	1998
Applegate Lakefront	Applegat lake	Riparian Planting	complete	1998
Beaver		Riparian Planting	proposed	1998
Beaver		Riparian Planting	proposed	1998
Beaver Creek		Riparian Planting	proposed	1998
Lower Elliott Creek	Sturgis Fork	Upland Improvements	proposed	1998
Lower Little Applegate River		Instream Structures	proposed	1998
Lower Little Applegate River		Riparian Planting	proposed	1998
Lower Little Applegate River		Riparian Planting	proposed	1998
Lower Little Applegate River		Riparian Planting	proposed	1998
Lower Little Applegate River		Riparian Planting	proposed	1998

Watershed	Project Name	Project Type	Status	Year
Middle Fork Applegate River	Slide@rd proj 12 1-302	Upland Improvements	proposed	1998
Palmer Creek	Bailey Gulch Mine	Upland Improvements	completed	1998
Spencer		Riparian Planting	proposed	1998
Spencer		Riparian Planting	proposed	1998
Spencer		Riparian Planting	proposed	1998
Squaw	Summit Lake Earth Flow	Upland Improvements	proposed	1998
Squaw	Slide Rehab 1-301	Upland Improvements	proposed	1998
Squaw Creek	Box Canyon Slide 1-303	Upland Improvements	proposed	1998
Steve Fork Creek	Slide above & below 1099	Upland Improvements	proposed	1998
Sturgis	Deer Creek Slide	Upland Improvements	proposed	1998
Sturgis Fork Creek	Clearcut Slide 1-304	Upland Improvements	proposed	1998
Sturgis Fork Creek	Obrien Creek Rill & Gully Eros	Upland Improvements	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	proposed	1998
Thompson Creek		Riparian Planting	completed	1998
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	1998
Upper Little Applegate	Mcd Basin	Upland Improvements	completed	1998
Yale Creek		Riparian Planting	proposed	1998
Yale Creek		Riparian Planting	proposed	1998
Applegate Lakefront	Applegat lake	Instream Structures	proposed	1999
Applegate Lakefront	Applegat lake	Riparian Planting	proposed	1999

Watershed	Project Name	Project Type	Status	Year
Carberry Creek	Sutton Gulch/Carberry Creek	Upland Improvements	proposed	1999
Middle Fork Applegate	Mt.Diablo Meridian Rt. 1055	Upland Improvements	proposed	1999
Palmer Creek	Bailey Gulch Mine	Upland Improvements	proposed	1999
Steve Fork Creek	Trib to Right Hand Fork/Steves	Upland Improvements	proposed	1999
Steve Fork Creek	Steve Fork	Upland Improvements	proposed	1999
Sturgis Fork Creek	Sturgis Creek	Upland Improvements	proposed	1999
Upper Little Applegate	Little Applegate	Instream Structures	proposed	1999
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	1999
Upper Little Applegate	Mcd Basin	Upland Improvements	proposed	1999
Beaver Creek	beaver creek	Riparian Planting	proposed	2000
Beaver Creek	beaver creek	Riparian Planting	proposed	2000
Little Applegate	little Applegat	Riparian Planting	proposed	2000
Palmer	Palmer	Instream Structures	proposed	2000
Palmer Creek	Unnamed Slide	Upland Improvements	proposed	2000
Palmer Creek	Palme creek	Riparian Planting	proposed	2000
Palmer Creek	Palme creek	Riparian Planting	proposed	2000
Steve Fork	Steve fork	Instream Structures	proposed	2000
Steve Fork Creek	Stev fork	Riparian Planting	proposed	2000
Steve Fork Creek	Stev fork	Riparian Thinning	proposed	2000
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	2000
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	2000
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	2000
Beaver Creek	Unnamed Slide	Upland Improvements	proposed	2001
Beaver Creek	Unnamed Slide	Upland Improvements	proposed	2001
Beaver Creek	Unnamed Slide	Upland Improvements	proposed	2001
Upper Little Applegate	Little Applegate	Instream Structures	proposed	2001

Watershed	Project Name	Project Type	Status	Year
Glade	Glade	Instream Structures	proposed	2002
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	2002
Upper Little Applegate	Unnamed Slide	Upland Improvements	proposed	2002
Yale Creek	Yale	Instream Structures	proposed	2002
Upper Little Applegate	McDonald	Instream Structures	proposed	2003
Elliot Creek	Elliott	Instream Structures	proposed	2004
Elliott Creek	Elliott creek	Riparian Planting	proposed	2004
Elliott Creek	Elliot creek	Riparian Thinning	proposed	2004
Squaw Creek	squaw creek	Riparian Planting	proposed	2004
Squaw Creek	squaw creek	Riparian Thinning	proposed	2004
Steve Fork	Steve fork	Instream Structures	proposed	2004
Steve Fork Creek	Stev fork	Riparian Planting	proposed	2004
Steve Fork Creek	Stev fork	Riparian Thinning	proposed	2004
Sturgis Fork	Sturgis fork	Instream Structures	proposed	2004
Sturgis Fork Creek	Sturgis fork	Riparian Planting	proposed	2004
Sturgis Fork Creek	Sturgi fork	Riparian Thinning	proposed	2004

Appendix C
Research and Monitoring in the Applegate AMA

Projects as of September, 1998

Each project is tied by number to AMA goals for research and monitoring. The following areas are identified as the highest priority for research and monitoring in the Applegate AMA (NOT listed in order of priority):

1. Creating and maintaining late-successional forest and riparian habitat conditions;
2. Reducing fire hazards;
3. Increasing the vigor of conifer forests and reducing susceptibility to insect and disease mortality;
4. Developing effective community participation.
5. Integrating timber production with wildlife and fishery habitats (including the maintenance of water quality);
6. Maintaining soil productivity as indicated by physical and biological soil characteristics;
7. Small diameter material inventory, harvesting, and utilization;
8. Developing low-impact logging and transportation systems;
9. Restoring native grassland, shrubland, and hardwood plant communities;
10. Developing inventories and assessment of a wide variety of forest resources;
11. Exploring more effective institutional approaches to managing the Adaptive Management Area beyond traditional agency structures.

Inventory or Baseline Monitoring The goal of this type of monitoring is to provide an initial assessment of species distribution or environmental conditions before a planned action is carried out. Baseline monitoring may be repeated periodically to detect trends or changes over time, in which case it is sometimes called detection monitoring.	**Contact (goal)**
Special Forest Products Inventory on Federal Lands Field sampling and inventory to determine the quality and quantity of special forest products on Federal lands using the quick plot sampling method. Data collected in 1995 and 1996 on Forest Service and BLM as pilot to test methods. Evaluation of inventory techniques and programs completed in Summer1996. Report on inventory methods available and inventory program for the Husky Hunter field data recorders is available through Melisssa at the Rogue Institute.	**Melissa Bornstein** (541) 482-6031 Rogue Institute for Ecology and Economy (7, 10)
Wildlife Monitoring - Middle Applegate Project Monitor site occupancy, reproductive status and success of Threatened, Endangered, and Sensitive Species found in the Watershed. Monitor the trends for special status and other priority species found in the watershed. Monitor vegetative habitats and coarse woody material and snags. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (5, 10)

Wildlife Monitoring - Little Applegate/Star/Boaz Project Monitor site occupancy, reproductive status and success of Threatened, Endangered, and Sensitive Species found in the Watershed. Monitor the trends for special status and other priority species found in the watershed. Monitor vegetative habitats and coarse woody material and snags. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (5, 10)
Bryophyte & Lichen Survey in Little Applegate Watershed Conduct a baseline inventory of bryophytes and lichens in the Little Applegate Watershed. Record occurrence of any Special Status or Survey and Manage Species of bryophytes and lichens. The goal is to achieve documentation on 90% of the biodiversity of bryophytes and lichens in the watershed. Survey in progress.	**Joan Severs** (541) 770-2232 Medford BLM (10)
Bat Populations Locate and monitor bat roosts, hibernation, and reproductive sites. Also mist netting at selected water sources. On going surveys.	**Matt Broyles** (541) 770-2320 Medford BLM (10)
Goshawk Survey Locate northern goshawk nest sites. Monitor existing goshawk nest sites to determine if the birds are still using the site and to determine if nesting is occurring. Three nest sites have been located and surveyed. No plans to conduct surveys during 1998.	**Mario Mamone** (541) 899-1812 Rogue River NF (10)
Spotted Owl Survey on the Applegate RD Participating with NCASI through a challenge cost share agreement to monitor selected sites. Additional surveys are conducted of spotted owl nest sites associated with active timber sales.	**Mario Mamone** (541) 899-1812 Rogue River NF (5, 10)
Range Analysis Surveys The condition of the range is evaluated in several surveys conducted on Ashland and Applegate ranger districts. Several reports and a learning summary are available at the Applegate RD.	**Jeannette Williams** (541) 899-1812 Applegate RD (1, 7, 10)
Environmental History of Applegate & Upper Illinois Report that gives a narrative of social history of the Applegate and Illinois river basins. Includes table of surveyors notes describing some of the landscape in the late 1800's. Report is available.	**George McKinley** (541) 482-6220 (10)
Bat Call Recordings Record bat calls. Recordings can be used later to help identify bat species without capturing individuals. An area can be surveyed by recording bat calls, then compared with known bat calls. Project is ongoing with recordings expected at the end of 1998.	**Mario Mamone** (541) 899-1812 Applegate RD (10)
Great Gray Owl Surveys Ongoing surveys are conducted under contract for timber sale planning areas. This species is a Survey and Manage species identified in the Northwest Forest Plan.	**Mario Mamone** (541) 899-1812 Applegate RD (10)
Re-photograph Lookout Panoramas The panoramic views from various fire lookouts in the Applegate AMA are being photographed using an Osbourne panoramic camera. Original panoramic photos were taken at the same locations in the early part of this century. Photos can be used to compare the vegetation structure, as viewed from the lookouts, for the two time periods. Photographs are stored at Siskiyou NF.	**Vince Randall** (541) 471-6581 Siskiyou NF (10)
Siskiyou Mountain Salamander Surveys on Siskiyou NF Sample for Siskiyou/Del Norte salamanders to determine whether the SIS salamanders occur on the Siskiyou NF portion of the AMA.	**Linda Mullens** (541) 471-6538 Siskiyou NF (10)

Landslide Inventory An inventory of unstable areas on the Forest Service lands in the AMA. This intensive inventory has been completed in areas where analysis has take place for site specific project level work.	**Dan Sitton** (541) 858-2360 Rogue River NF (6, 10)
Wildland Fire Hazard in the Applegate Interface Photo plot series was developed for use in determining the fire hazard within various multi-layered and low vegetative canopied brush/hardwood stands in the Applegate. Each photo plot identifies vegetative information, fuel loading, associated fire hazard, and provides recommendations for reducing the fire hazard within that vegetation type. This report was prepared for the Middle Applegate Watershed Assessment with some utility for the Lower Thompson Creek Environmental Assessment. Report is available through Bill Yocum.	**Bill Yocum** (541) 770-2384 Medford BLM (2, 10)
Survey and Manage Bat Species Inventory A systematic inventory of bats conducted within the south zone in Summer 1996 with SOSC as challenge-cost share partner. Objectives were to 1) determine the presence of Northwest Forest Plan bat species and radio track selected individuals to learn about roost habitat requirements, 2) gather data on echolocation to complete a catalog of bat calls for species in Applegate, 3) monitor over 250 boxes to determine their effectiveness and train personnel in techniques. Learning summary and final report are available.	**Dave Clayton** (541) 899-1812 Applegate RD (10)
Aquatic Macroinvertebrate Monitoring in the Little Applegate River Aquatic insects are sensitive indicators of stream habitat quality (e.g. riparian condition, water temperature, sedimentation). This survey will indicate current conditions and serve as a baseline for future monitoring. Report is completed and on file at Medford BLM.	**Bob Bessy** (541) 770-2358 Medford BLM (1, 10)
Aquatic Macroinvertebrate Monitoring in the Applegate River Sub-basin Monitoring sites are located in perennial streams throughout the Applegate River Sub-basin. The objective of this monitoring is to detect trends of biotic/habitat integrity. Macroinvertebrate communities in streams can be used as a barometer of overall biodiversity in aquatic ecosystems.	**Laurie Lindell** (541) 770-2254 Medford BLM (1, 10)
Distribution & Relative Abundance of Fish in the Little Applegate River Determine the miles of fish habitat the Little Applegate watershed and habitat used or is capable of supporting each species. Also provides opportunistic information of other aquatic species such as amphibians. 1994 data serves as baseline data for future surveys. Data on file at the Applegate RD.	**Bob Bessy** (541) 770-2358 Medford BLM (1, 10)
Water Quality & Streamflow Monitoring in the Little Applegate River Collect stream temperature, streamflow, dissolved oxygen, nitrate and phosphates at 25 stations on the Little Applegate to determine suitability of habitat for fish and amphibians. This will serve as a baseline for future monitoring and where possible related to the effects of land management practices. Summary of data available at Applegate RD.	**Mike Zan** (541) 899-1812 Rogue River NF (1, 10)
Water Quality and Streamflow Monitoring Rogue River National Forest Collect pH, dissolved oxygen, turbidity, conductivity, nitrates and phosphates, and flow on Little Applegate River, Beaver Creek, and Palmer Creek within the AMA. This project is proposed in conjunction with the RRNF Ecosystem monitoring framework water condition indicator. Other streams on the RRNF will be monitored as well. This work compliments water temperature monitoring coordinated by Jon Brazier.	**Debbie Whitall** (541) 899-1812 Applegate RD (1, 10)

Water Temperature & Flow Monitoring Monitor summer stream temperatures and flow from main stem and tributaries of the Applegate Drainage to identify stream reaches with high temperatures and track changes over time due to weather and land management practices. Results are used by Department of Environmental Quality to identify streams that meet or do not meet State temperature criteria. Summary of all monitoring points on BLM and Forest Service lands in the Applegate for current and past years data are available from Jon Brazier at the Rogue River NF.	**Jon Brazier** (541) 858-2271 Rogue River NF (1, 10)
Star Gulch Monitoring Stream flow, turbidity, temperature, and monumented stream channel cross sections are monitored in the upper and lower portions of Star Gulch. The USGS is funded by BLM to maintain a streamflow gaging station in lower reach of star Gulch and the results are published in the annual USGS Oregon Water Resources Data publication. Monitoring sites were established to correlate changes in water and channel conditions to management activities.	**David Squyres** Medford BLM (541) 770-2214 1, 10
Stream Temperature Monitoring Applegate River Sub-basin Stream temperatures are monitored from June 15 to September 30 in perennial streams throughout the Applegate River Sub-basin. The objective is to characterize existing temperature conditions and look at changes over time. This is part of the Rogue River Basin cooperative stream temperature monitoring program conducted by a number of groups and agencies. Results are used by Department of Environmental Quality to identify streams that meet or do not meet State temperature criteria.	**David Squyres** (541) 770-2214 Medford BLM (1, 10)
Water Quality and Stream Ecology Monitoring Monitor water condition parameters (temperature, dissolved oxygen, pH, turbidity, conductivity, phosphate, and nitrates). Stream surveys will be conducted according to Oregon Department of Fish and Wildlife protocols to determine the physical/biological condition of fish habitat. Fish species and numbers will also be recorded. This project involves an outreach and education component for private landowners. This work is being conducted in the summer of 1998 exclusively on private lands.	**Hans Rilling** (541) 899-9982 Applegate River Watershed Council (1, 10)
Fish Habitat and Riparian Condition Inventory This inventory is being conducted to get a comprehensive assessment of stream and riparian conditions in the Applegate Sub-basin. ODFW is contracted to collect the stream survey data. Data coordinated with the Applegate River Watershed Council, ODFW, and Forest Service. Streams surveyed in 1998 are: Dog Fork, Glade Creek, Grouse Creek, Little Applegate River, Quartz Gulch, and Yale Creek. Surveys for previous years have been conducted on other streams throughout the Applegate as well.	**Jeannine Rossa** (541) 770-2351 Medford BLM (1, 10)
Stream Habitat Survey (USFS Level II & III) Inventory of current stream habitat conditions and serve as a baseline for future surveys in the watershed. Surveys ongoing. Data available from Su Maiyo.	**Su Maiyo** (541) 482-3333 Siskiyou Zone Rogue River NF (1, 10)
Spawning Surveys Collect baseline data for use in determining numbers of returning adults, spawning success, changes in relative numbers, species composition, and distribution of anadromous fish. These are conducted in partnership with Oregon Department of Fish and Wildlife, Southern Oregon University, Applegate Watershed Council, and Oregon Trout, and demonstrate cooperative support towards the Oregon Coastal Salmon Restoration Initiative goals.	**Su Maiyo** (541)482-3333 Siskiyou Zone Rogue River NF (10)

Spawning Surveys in Star Gulch and Nine Mile Creek Monitors populations of spawning Coho and Steelhead by surveying redds from November through April. Monitoring has been conducted since 1980.	**Jane Lefors** 770-2351 **or Bill Haight** 770-2431 Medford BLM (10)
Spawning Surveys - Grants Pass Resource Area Monitor populations of spawning Coho and Steelhead by surveying redds from November through April. Surveys generally indicate fish are migrating up into stream systems further than previously documented.	**Dave Maurer** (541) 770-2409 Medford BLM (10)
Stream Surveys - Williams Creek Watershed Stream surveys conducted with priority for the Port-Orford Cedar and Scattered Apples project areas. Future restoration projects will be considered following analysis of this baseline data.	**Dave Maurer** (541) 770-2409 Medford BLM (1, 10)
Road Inventory-Williams Creek Watershed Road inventories completed to identify transportation management, road restoration and decommissioning needs.	**Dave Maurer** (541) 770-2409 Medford BLM (1, 10)
Fish Presence/Absence Surveys An inventory of 14 tributaries of fish-bearing streams throughout the Applegate to confirm the presence or absence of fish in streams previously surveyed. The inventory also documented habitat conditions and barriers limiting fish distribution.	**Karen Bolda** **or Jane Lefors** 770-2351 Medford BLM (10)
Smolt Trap Monitoring Monitor smolt condition, production, and adult recruitment.	**Su Maiyo** (541)482-3333 Siskiyou Zone Rogue River NF (10)
Rosgen Stream Classification & Monitoring Four-fold: 1) predict creek's behavior from its morphology, 2) develop specific hydraulic and sediment relations for a given morphologic channel type, 3) provide a mechanism to extrapolate site specific data collected on a given stream reach to those of similar character, and 4) provide a consistent and reproducible frame of reference of communication. Surveys ongoing and data available through Debbie Whitall.	**Debbie Whitall** (541)899-1812 Rogue River NF (1, 10)
Landscape Soil Disturbance Assessment Using aerial photo interpretation and some field checking, watersheds were surveyed for percentage of area in skidtrails and bare soil in the Little Applegate. In recently logged clearcuts, amount of large down logs were determined per acre. Summary of data in Little Applegate Watershed Analysis Report 1995.	**David Steinfeld** (541) 899-1812 Applegate RD (6, 10)
Lake Surveys Gather baseline data on chemical, physical and biological properties of wilderness lakes, and the Squaw Lakes. Asalea and Towhead Lakes have been sampled in 1995 and 1996.	**Jon Brazier** (541) 858-2271 Rogue River NF 1, 10
Rock crawlers as Global Warming Indicators This study will determine the presence/absence of *Grylloblattidae* in the Siskiyous. Not much is known about this family of insects. What is known is that they have a very narrow range of temperature preference and may be useful indicators of environmental changes such as global warming. An inventory of potential habitat will occur summer/fall of 1998. It is anticipated that any specimens located may be described as new species.	**Pwyll Lalouken** Williams OR Consulting Entomologist (10)

The Butterflies of Mt. Ashland: Community Surveys Along the Siskiyou Crest This study, conducted for the Rogue River National Forest in 1996, provides a summary account of butterfly species encountered along the Siskiyou Crest near Mt. Ashland. This information provides baseline data against which future changes in butterfly populations can be compared.	**Chris Nice & Richard VanBuskirk** University of California Davis (10)
Review of Franklin's Bumblebee population viability The biology and ecology of Franklin's bumblebee is little known. This project will review the field ecology and assist to determine reproductive and social biology of this species to help answer the questions of range, population, and potential for long-term viability of the species on federal habitat.	**Dr. Robbin Thorpe** University of California, Davis (10)
Examination of dispersal and population of Sternitsky's Apollo butterfly Certain species of butterflies have specific habitat requirements. This butterfly is an alpine rock obligate, which may or may not disperse long distances from its source population. This project will review via data analysis and mark/recapture the potential dispersal distances of the species, and estimate the meta-population.	**Kristine Mazzei** University of California, Davis (10)
Avian Monitoring - Mist Netting Applegate Lake Due to access problems resulting from a washed out bridge the original site was dropped and a new site is in the process of being selected. It is likely a high elevation fall migration site will be selected. This Neotropical Migratory bird monitoring study is coordinated with the Bird Population Center, Point Reyes, CA. The data generated from the study is compiled with data from nearly 200 mist netting sites scattered throughout the U.S., Canada and Mexico. The analysis of data for all mist net stations within southwest Oregon is now in progress, with a completion date of 1999.	**Mario Mamone** (541) 899-1812 Rogue River NF (10)
Neotropical Bird Monitoring Monitor long term trends in bird populations. Second year of data completed.	**Stewart Janes** (541) 552-6797 Southern Oregon University (10)
Ecoplots Long term evaluation of species composition and forest structure are monitored across ownership boundaries in the AMA. Over 300 plots are established. Reports available at Siskiyou NF.	**Tom Atzet** (541) 471-6531 Siskiyou NF (1, 10)
Age Class Distribution and Disturbance History - Kin's Wood Timber Sale Collected data on tree age and disturbance (fire) history from the stumps of trees harvested with the Kin's Wood Timber sale.	**Marty Main** (541) 826-5306 Small Woodland Services, Inc. (10)

Implementation Monitoring

This monitoring focuses on the question - "did we do what we said we were going to do in our projects?" For example, in our EA's we might state that we will: leave 5 snags per acre; keep skidtrails to less than 10% ; cut trees to a basal area of 120 sq. ft; stay 150 feet from a Class IV stream or avoid a lady slipper orchid population. This type of monitoring assesses if we actually did or didn't do these things. Finding out if we didn't can be used as an adaptive management feedback for doing it better in the future. This type of monitoring , if communicated well, can build agency and public trust.

	Contact (goal)
Tree Planting, Stocking & Survival On BLM Lands Monitor success of artificial reforestation program. Ongoing monitoring.	**Steve Schober** (541) 770-2200 Medford BLM
Air Quality Monitoring The Rogue River Basin Interagency Smoke Monitoring Plan contains an approach and preliminary design for a network of air quality monitoring stations to measure the impacts of smoke from prescribed fires in the Rogue River Basin. Medford BLM, the Rogue River and Siskiyou National Forests, and Oregon DEQ have entered into a Memorandum of understanding for this purpose. A monitoring station is currently active at Provolt Nursery; a total of 6 stations is proposed.	**Dave Russell** (541) 770-2351 Medford BLM (2)
Eastside Thin Timber Sale -Soils Monitor the percent of the area with detrimental soil compaction as a result of commercial thinning using a harvester/forwarder machine. Baseline data collected prior to harvest operations and post-harvest data will be collected spring of 1999.	**Mark Prchal** (541) 899-1812 Applegate RD (6)
Eastside Thin Timber Sale -Snag Retention The project called for the maintenance of 3 snags per acre (average). A preharvest snag inventory was conducted. A second survey will be conducted following the completion of fuels treatments in 1999.	**Dave Clayton** (541) 899-1812 Applegate RD (5)
Eastside Thin Timber Sale -Silvicultural Objectives Monitor the trees designated for removal to determine if the marking guidelines were implemented as planned. An informal walk-through inventory was conducted and it was determined that the marking guidelines were implemented as designed.	**Bob Miller** (541) 899-1812 Applegate RD (3)
Beaver Pole Timber Sale - Soils Monitor the percent of the area with detrimental soil compaction as a result of commercial thinning using tractor harvest systems. Preharvest compaction data will be collected. Data will be collected following harvest operations to determine the extent of compaction resulting from this project.	**Mark Prchal** (541) 899-1812 Applegate RD (6)
Wagner Gap Timber Sale - Soils Monitor the percent of the area with detrimental soil compaction as a result of commercial thinning using tractor harvest systems. Preharvest compaction data has been collected. Data will be collected following harvest operations to determine the extent of compaction resulting from this project.	**Mark Prchal** (541) 899-1812 Applegate RD (6)

Upper Thompson Timber Sale -Soils Monitor the percent of the area with detrimental soil compaction as a result of commercial thinning using tractor harvest systems. Informal walk-through inventory to predetermine skid trail patterns utilizing existing skid trails to the extent possible was conducted. Data will be collected following harvest operations to determine the extent of the area compacted.	**Mark Prchal** (541) 899-1812 Applegate RD (6)
Monitor Soils - Middle Applegate Project Monitor soil erosion features from road construction, off highway vehicle use in problem areas. Monitor newly compacted areas through contract administration. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (3)
Monitor Soils - Little Applegate/Star/Boaz Project Monitor soil erosion features from road construction, and duff thickness before and after surface disturbing activities. Monitor newly compacted areas through contract administration. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (3)
Tree Planting, Stocking & Survival On Forest Service Lands Monitor success of artificial reforestation program. Ongoing surveys.	**Steve Bulkin** (541) 858-2327 Rogue River NF
Prescribed Burning Effects On Soil Cover Monitor duff and litter cover, duff depth, bare soil, down woody debris and exposed rock before and after prescribed burning in the Flumet I prescribed fire project in the Palmer Watershed. Analysis and write-up completed.	**David Steinfeld** (541) 899-1812 Applegate RD (6)
Survival of Operational Plantings of Native Plants at McDonald Basin Plantings of two species of manzanita and five species of native grasses were planted operationally on very disturbed sites in McDonald Basin. Monitoring assessed the survival of plants. Two learning summaries are available on this project.	**David Steinfeld** (541) 858-6105 J. Herbert Stone Nursery (6, 9)
Implementation Monitoring in the Waters Thin Project A set of monitoring plans are being written to assess how this thinning project is being implemented. Monitoring plans are available, pre-harvest data has been collected, and post-harvest data will be collected following the completion of harvest operations.	**Steve Tanner** (541) 471-6721 Galice RD (3, 5)

Effectiveness Monitoring

Effectiveness monitoring attempts to answer the question - "Was the project effective in meeting the stated intentions or goals". For example, the EA might state that one objective of a project is to leave 5 snags/acre to increase cavity nesting birds and another is to thin a stand to 120 sq. ft basal area to increase growth in remaining trees. Effectiveness monitoring would assess whether cavity nesting birds or growth in remaining trees has actually increased. Effectiveness monitoring usually tests a hypothesis and for this reason, must be set up in an experimental design.

	Contact (goal)
Bird Survey of Ponderosa Pine Communities Monitor Bird populations before and after management activities in ponderosa pine stands to assess the effectiveness of promoting wildlife communities in the ponderosa pine plant communities. Project located on Elliott Ridge. Analysis was completed in 1995 and report available.	**Pepper Trail** (541)482-9594 (5, 9, 10)
Riparian Demo Project Test vegetation control and conifer planting methods in the reestablishing of a mature conifer component in a hardwood dominated riparian zone to increase diversity and coarse woody material. Located in Haskins Gulch. Thinning completed in 1995 and data collected in 1996. Data has not been analyzed.	**Dan Ingledue** (541) 899-1812 Applegate RD (1)

Fire Effects - Forest Creek, Middle Applegate, Little Applegate/Star/Boaz Monitor the effectiveness of prescribed burning in meeting fire hazard reduction objectives. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (2)
Williams Port-Orford Cedar Project Monitoring Monitor the effectiveness of silvicultural prescriptions, including prescribed fire, in reducing populations of *Phytophthora lateralis.* Monitoring is being completed in coordination with Southwest Oregon Forest Insect and Disease Technical Center. Baseline data has been collected to determine the extent of the disease and potential pathways for the spread of the disease. This data was used to design the project, with the objectives for reducing the occurrence and spread of *P. lateralis* populations. Post treatment data will be collected to determine the effectiveness of the prescribed treatment strategy.	**Frank Betlejewksi** (541) 770-2338 Medford BLM (3)
Prescribed Fire/Native Plants/Fuels Compare the effects of prescribed fire on occurrence and distribution of native and non-native plants on grass and oak woodland sites. Project is completed and preliminary data analysis has occurred. Located near Charlie Buck on the Applegate RD.	**Wayne Rolle** (541) 770-2248 Rogue River NF (9)
Medusahead Control/Native Grassland Restoration Assess several methods for controlling medusahead and annual grasses. Methods include mowing, burning and grazing. All methods followed by native grass seeding. Study plan describes three phases of study. First phase was installed in Spring 1996. Treatments were implemented in 1997, data was collected and will be analyzed in 1998. Funding permitting, other phases will be installed in 1998.	**Richard Brock** (541) 482-4111 (9)
Glade Creek Slide Monitoring Evaluate effectiveness of groundwater interceptor (dewatering) trench to stabilize 18,000 cubic yard earthflow. Initial monitoring occurred in 1983 and 1989. Follow-up monitoring has not occurred due to funding limitations.	**Pete Jones** (541) 858-2362 Rogue River NF (6)
Avian Monitoring - Brushfields/Ponderosa Pine Stands Evaluates the effects of prescribed fire and timber harvest activities on bird communities within these two habitat types. Also test a new bird monitoring technique - the "Area Searches" method. Pretreatment data has been collected and will continue in 1998. Timber harvesting will likely occur in 1998; however, the timeframe for implementing the prescribed burning in the brush field is not known.	**Mario Mamone** (541) 899-1812 Applegate RD (5)
Increase in Tree Vigor of Ponderosa Pine Following Density Management Monitor release of mature timber with thinning. Data has been collected and preliminary analysis completed.	**Dave Russell** (541) 770-2236 Medford BLM (1, 3)
Cedar Log RNA Burn Monitoring Monitor the response of serpentine plant communities (and the sensitive species associated with them) to prescribed burning. Two years of pre-burn data has been collected and report is available. Post-burn data has been collected and is currently being analyzed. Work is being done by Nature Conservancy.	**Linda Mullens** (541) 471-6538 Siskiyou NF (5, 9)
Vegetative Response to Management Activities Monitor the response of oak woodland/grass plant communities to vegetation management treatments including prescribed fire, thinning, and brush removal. This data will be used to monitor the effectiveness of these treatments in restoring these types of plant communities. This work is, or will be occurring on Thompson Creek and Forest Creek projects.	**Dave Russell** (541) 770-2200 Medford BLM (9)

Effects of Prescribed Burning on Ponderosa Pine Monitor effects of prescribed burning on growth, bark mounds, scorch height, mortality levels, and crown ratios of ponderosa pine. Project is in the Flumet II prescribed burning project area and pre burning plots have been laid out and post burning plots were taken Spring 1996. Preliminary report available.	**Katie Marshall** (541) 858-6125 Rogue River NF (1, 3)
Buncom Timber Sale - Silvicultural Monitor the response and changes in vigor of conifer stands between 100 to 120 years old that were commercially thinned. Questions concerning the ability of trees of this age to respond to treatments have arisen. This effort is also part of a larger effort of monitoring stand vigor throughout the Applegate Watershed. Project proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (3)
Monitor Terrestrial Vegetation - Middle Applegate Project Monitor commercial timber stands for vigor using relative density and individual tree growth; forest health using green spectral analysis; canopy closure pre and post harvest; coarse woody material pre and post harvest; number and quality of snags and suitability of cavity formation. Monitoring proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (3, 5, 6)
Monitor Terrestrial Vegetation - Little Applegate/Star/Boaz Project Monitor commercial timber stands for vigor using relative density and individual tree growth; forest health using green spectral analysis; canopy closure pre and post harvest; coarse woody material pre and post harvest; number and quality of snags and suitability of cavity formation. Monitoring proposed for 1999.	**Dave Russell** (541) 770-2351 Medford BLM (3, 5, 6)
Bat Occupancy of Snag Habitat Detect presence of bats at known roosts using two methods: 1)Visual observation of emergence from roost sites and 2) Various stimuli (taped bat calls, high frequency sound and vibrations) to elicit bat responses. Study plan being developed.	**Dave Clayton** (541) 899-1812 Applegate RD (10)
Characterizing Northern Spotted Owl Nesting Trees & Stands Characterize the Douglas-fir dwarf mistletoe and other structural attributes on northern spotted owl nests and nest stands. This information can be used to develop guidelines for managing owl nest stands in the Siskiyou Zone to provide owl habitat requirements while maintain the vigor of the stands. Data collection is complete and the data entered into a database. Analysis of data and final report to be completed winter 1998/99 (funding dependent).	**Mario Manone** (541) 899-1812 Applegate RD (5)
Changes in Canopy Cover Following Understory Density Management Assess the changes in canopy cover after understory density management treatments. Canopy cover changes were measured using a "moosehorn". Data has been analyzed and results are available.	**Dave Russell** (541) 770-2203 Medford BLM (3, 5)
Bird Point Count for Proposed Burn Area at Cedar Log Research Nat. Monitoring of 11 bird census points in the proposed control burn area of Cedar Log RNA. Census taken June 22, 1995 and June 18, 1996. Data is available through Dennis Vroman.	**Dennis Vroman** (541) 471-6749 Galice RD (5)
Pine Monitoring on the Waters Thin Project Assess the effectiveness of the thinning project on 1) reducing stocking around pine trees to recommended levels, 2) increasing vigor of residual pines and 3) minimizing infestation of residual pines by bark beetles. Pre-treatment data collected on stand condition and assessment of 100 large ponderosa pines. Post-treatment monitoring will continue for 20 years after thinning. Report in the summary of pretreatment data available.	**Don Goheen** (541) 858-6125 SWOFIDTC (1, 3)
Riparian Zone Temperature & Humidity Study Evaluate the effects of several different riparian management silvicultural prescriptions on temperature and humidity within several riparian zones on FS and BLM lands. The study sites are within several timber sales that have been recently sold or will be sold in the near future. One year of data has been collected and learning summary is available.	**Mario Mamone** (541) 899-1812 Applegate RD (1)

Validation Monitoring	**Contact (goal)**
The intent of validation monitoring is to investigate the scientific basis for observations and whether fundamental assumptions and models are correct. PNW Research Station is involved with testing whether certain assumptions that the standards and guidelines stated in the NW Forest Plan are correct. This type of monitoring can be very long term and regional in scope. Included in this is the development and testing of new techniques and technologies.	
Density Management/Bark Beetles - Lower Thompson Creek On overstocked Douglas-fir/ponderosa pine stands that are high risk for bark beetle attack (200-300 sq. ft, 160 sq. ft and variable density of 120-180 sq. ft with 1/5 acre group selection) to determine if incidence of disease is reduced. Pre-thinning data has been collected in the Lower Thompson Creek Units.	**Dave Russell** (541) 770-2203 Medford BLM (3)
Maintenance & Enhancement Large Diameter Conifer Maintain and encourage the development of large-diameter conifers through pre-commercial and commercial thinnings to assess effect on stand health and values. Report available.	**Marty Main** (541) 826-5306 (1, 3)
Stocking Control Around Ponderosa Pines Assess effects of reducing competing vegetation around individual ponderosa pines on growth and mortality of large ponderosa pines due to bark beetle attack. Measure the costs of such treatments and products that are generated and develop methods and contract specifications. Located in Beaver Watershed. Removal of material took place in Spring of 1996. Preliminary report and learning summary available.	**Katy Marshall** (541) 858-6125 Rogue River NF (1, 3)
Monitor Del Norte Salamanders - Wild Wonder Timber Sale Monitors the effects of commercial thinning on Del Norte salamander populations and habitat. Preharvest climatic data and population data (using time and climate restrained protocol) would be collected in the fall of 1998. Data would be collected again following the completion of harvest activities. Data would be used to determine if existing management guidelines are appropriate for this species.	**Cliff Oakley** (541) 770-2435 Medford BLM (1,5)
Density Management/Bark Beetles - French Gulch Compare three density management treatments on overstocked Douglas-fir/ponderosa pine stands that are high risk for bark beetle attack to determine if incidence of disease is reduced. This is a third replication of study being installed. First two are in Lower Thompson Creek Density Management Project - Ashland RA, Medford BLM. This portion of study is on the Applegate RD. Pre-thinning data has been collected.	**Dave Russell** (541) 770-2203 Medford BLM (1, 3)
Soil Compaction After Yarding Small diameter Material with a Small Tractor Evaluate effects of yarding small diameter understory trees using small ground based equipment on soil compaction. Located in the Woodpecker Tractor Demo area of the Little Applegate, the study assesses degree of soil compaction after 1, 3, and 6 trips. Study was completed in Fall 1996 and final report is available.	**David Steinfeld** (541) 899-1812 Applegate RD (6)
Satellite Vegetation Classification Accuracy Assessment Provide an accuracy assessment highlighting the strength and weaknesses of recently acquired vegetation data from remote sensing technology (Landsat) for the Applegate watershed. Data collected Summer 1995 and analysis completed in Feb. 1996. Report available.	**Ed Reilly** (541) 899-1812 Applegate RD (10)

Soil Arthropods, Carbon Cycling Invertebrate soil biodiversity is examined on a variety of managed sites. Differences in abundance and diversity are assessed. Carbon pools and rates of transfer are monitored. Data collection completed and report in progress.	**Andy Moldenke** Oregon State University (6, 10)
Old Growth Development Pathway Determine what factors are most influential in the development of old-growth forest characteristics in Southwestern Oregon. Specific objectives include a determination of the role of disturbance, particularly fire, in tree establishment and stand development, the significance of coarse woody debris and the physical site characteristics that facilitate late successional forest structures. Data collection 1996-98.	**Tom Sensenig** (541) 770-2319 Medford BLM (1, 3)
Changing Forest Structure from 1939-1992 - Pilot Evaluate the effectiveness of measuring vegetative changes over time by comparing aerial photographs taken from 1939 to present and analyzing with stereoplotter and GIS equipment. 1939 dia-positive photos were purchased and study plan developed.	**Tim Westfeldt** (541) 664-6674 Rogue Council of Governments (10)
Siskiyou Mountain Salamander Investigate and elucidate the habitat associations of P. stormi, including relationships with stand structure and composition and the limits of range. Project currently being implemented.	**Dave Clayton** (541) 899-1812 Applegate (5, 10)
Applegate Partnership as Mode of Collaboration Investigates and describes the current relationships and processes of partnership as they affect the relative success or failure of future AMA. Reports available at Applegate AMA Library.	**Victoria Sturtevant** (541) 552-6762 Southern Oregon University (4)
Effects of Partial Overstory Removal on Stand Structure, Growth Through retrospective study, provide information on how past manipulation of overstory tree density has affected the growth and development of overstory and understory vegetation in second-growth Douglas-fir of Western Oregon. Study in progress.	**John Bailey** National Biological Survey (1, 3)
The Effects of Timber Harvest on Big-eared Bat Maternity Site -Savage Green timber sale. This project involves the use of radio telemetry to monitor the foraging behavior of big-eared bats associated with this maternity site, and the effects timber harvest may have on their behavior. This study would be used to determine the effectiveness of using a 1,000 foot no-harvest buffer for protecting big-eared bat maternity sites from climatic changes and disturbance resulting from timber harvest operations. Baseline data was collected in 1997 prior to harvest, and data will need to be collected following the completion of harvest operations to determine if the project had any impacts on this site.	**Cliff Oakley** (541) 770-2435 Medford BLM (1, 5)
The Effects of Commercial Thinning on Northern Spotted Owl Core Areas - North Murphy Timber Sale Assess the effects of commercial thinning and modified group select timber harvest prescriptions on northern spotted owl core areas. Three owl sites located after 1994 would be monitored to determine if the owls are displaced, any changes in expected turn over rates of adult owls, and the nesting and fledging success of these sites if they remain occupied. Baseline data has been collected in 1997 and prior years. Post harvest data is needed. The results of this study would assist in designing future prescriptions that reduce impacts on spotted owls.	**Cliff Oakley** (541) 770-2435 Medford BLM (1, 5)

Monitor Survey and Manage Species - Little Applegate/Star/Boaz Monitor species response to disturbance and the environmental effects of the project on these species.	**Dave Russell** (541) 770-2351 Medford BLM (5)
Monitor Plant Species and Habitats - Little Applegate/Star/Boaz Monitor plant population response to disturbance and environmental effects of project implementation on special status plants.	**Dave Russell** (541) 770-2351 Medford BLM (5, 9)
Monitor Plant Species and Habitats - Middle Applegate Project Monitor plant population response to disturbance and environmental effects of project implementation on special status plants.	**Dave Russell** (541) 770-2351 Medford BLM (5, 9)
Timing and Pollination of Lady Slipper Orchids This work is being conducted with Medford BLM to determine the pollination mechanisms of *Cypripedium fasciculatum*. Preliminary data has been collected and work will continue in the spring of 1999.	**Carol Ferguson** **Southern Oregon University** (5, 9)
Impact of New Timber Harvest Methods on Bird Populations - Panther Gap Timber Sale Assess potential impact of new timber harvest methods on breeding and wintering bird populations within the Panther Gap Timber Sale. Data was collected for 2 years prior to timber harvest and for 2 years following timber harvest operations. The data has been analyzed and the final report is available.	**Stewart Janes** Southern Oregon University **Cliff Oakley** Medford BLM (541) 770-2435 (5)
Impact of Timber Harvest Methods on Bird Populations - Scattered Apples Timber Sale Assess potential impact of modified group select timber harvest prescriptions on breeding and wintering bird populations within the Scattered Apples Timber Sale. Baseline data will be collected in 1999 prior to timber harvest, and will be collected again following timber harvest operations. This work will be contracted with Southern Oregon University.	**Cliff Oakley** (541) 770-2435 Medford BLM (5)
Microclimate Monitoring - Williams Port-Orford Cedar Management Project Monitor the climate conditions within stands treated to determine the effects of harvesting trees within these areas. Data would be collected prior to harvest in 1999 and again following the completion of the project. Data would be used to determine potential effects to wildlife species that utilize this habitat type.	**Cliff Oakley** (541) 770-2435 Medford BLM (5)
Beaver Pole - Stream Monitoring Monitor stream channel conditions pre and post treatment to determine the effects of commercial thinning (tractor) within the Riparian Reserves of intermittent stream channels. Stream cross-sections will be installed in the fall of 1998. Monitoring will occur for several years to detect changes in channel conditions which may have occurred as a result of thinning operations.	**Mike Zan** (541) 899-1812 Applegate RD (1)
Eastside Thin - Stream Monitoring Monitor stream channel conditions pre and post treatment to determine the effects of commercial thinning using a Harvester/Forwarder within the Riparian Reserves of intermittent streams. Photo points will be installed fall of 1998 and will be revisited in the spring of 1999 and 2000 to monitor changes occurring in channel conditions as a result of harvest operations.	**Mike Zan** (541) 899-1812 Applegate RD (1)

Revegetating High Elevation Sites 95 - McDonald Basin Evaluate the efficacy of revegetating the upper slopes of McDonald Basin with nursery grown shrubs and grasses. Project completed in 1995 and 2nd year survival collected in 1996. Data is currently being analyzed. Learning summary available that addresses general findings. A final comprehensive report of vegetative restoration work competed at McDonald Basin will be completed winter 1998/99.	**Nan Vance** (541) 750-7302 PNW Research Station (6, 9)
Demonstration of Low Impact Harvest Methods for Small Diameter Material Evaluate the potential effectiveness and application of methods including plastic chute technology for a range of uses in Southern Oregon as well as develop the necessary proficiency in estimating costs, productivity, and necessary training strategies for use. To be implemented in fall of 1998.	**Glen Brady** (541) 482-6031 Rogue Institute For Ecology and Economy (7, 8)
Native Grass Seed Germination on High Elevation Sites Evaluate factors affecting germination and growth of native grasses in McDonald Basin. A series of plots will compare success of seed germination with soil moisture, temperature, erosion rates an slope gradient. Data collected in Summer 1996 and preliminary findings documented in a learning summary. A final comprehensive report of vegetative restoration work competed at McDonald Basin will be completed winter 1998/99.	**Steve Feigner** (541) 858-6100 J. Herbert Stone Nursery (6, 9)
Structural Applications of Forest Thinnings as Round Timbers Using the same stands as the Veneer Study RIEE and PNW Forest Sciences Lab will 1) assess the volume, physical, and mechanical properties of stems harvested from thinnings which would meet the minimum requirements for post and pole construction and 2) evaluate the use of stress wave non-destructive evaluation (NDE) as a means of predicting strength of small diameter round timbers. 400 plugs representing 22 stands are collected and being tested for specific gravity.	**Glen Brady** (541) 482-6031 Rogue Institute for Ecology and Economy (7)
Success of Freezer Stored & Hotlifted Seedlings on High Elevation Compare the survival and growth of nursery grown seedlings that have been freezer stored with those that have been left in the field and hotlifted immediately before outplanting. Assess the relationship between survival of both stocktypes with whether seedlings were planted in shade or in openings. Seedlings were planted in June 1996 in McDonald Basin. Three years of data have been collected and a final report will be completed winter 1998/99.	**Nan Vance** (541) 750-7302 PNW Research Station (6, 9)
***Cypripedium* Research** *Cypripedium fasciculatum* (clustered lady slipper) is listed as Forest Service sensitive species and Northwest Forest Plan Survey and Manage species. Little is known about the biology of this species. Ongoing research is being conducted to gain a better understanding of habitat characteristics, correlate underground structure with above ground characteristics, correlate changes in forest structure and disturbance with changes in population demographics across multiple forest ownerships, and investigate these relationships at different scales using GIS.	**Penelope Latham** (541) 772-5165 Cooperative Forest Ecosystem Research (CFER) (1, 5)
Review of need for voluntary permitting system for butterfly collection on the Rogue River National Forest Butterfly collection is an avid pursuit by many people who use the southwestern Oregon mountain habitat as a prime location for collection activities. This project will examine the need, and efficacy of a voluntary permitting system to ascertain collection pressure, and to obtain additional data on butterfly collection activities.	**Kristine Mazzei** University of California, Davis

Infrared Vegetation Management Project Determine if infrared technology is a biologically, economically and environmentally viable component of an Integrated Pest Management strategy for roadside vegetation management. Several sites were selected on Water Gap Rd and Williams Hwy. to test infrared and herbicide treatments against a control. This study began in 1996 with an expected completion date of Spring 1998. The study time has since been expanded with an expected completion date of Winter 98/99.	**Rob Edgar** (503) 986-2846 ODOT (9)
Enhancing Community Capacity to Use Spatial Information Develop and test methods for enhancing the capacity of rural communities in the Applegate to use geographic information system (GIS) and other information technology to facilitate increased participation in ecosystem management, land use planning and other local activities. Project description and progress can be found at website: http://ecotrust.org/applegate/agcap.html.	**Sam Doak** (503) 231-7376 Interrain Pacific (4)
Evaluating Wood Quality Potential from Small Diameter Stands in SW Determine the characteristics of small diameter timber in the Applegate and the relationship between those characteristics and product value. Stress wave non-destructive evaluation techniques (the log "thumber") will be applied to harvested timber, then timber will be peeled for veneer at Boise Cascade plant. Veener will be evaluated engineering properties. Study completed and copies available.	**Sue Willits** PNW Research Station (3, 7)
Soil Processes Important to Vegetative Restoration in the Siskiyou On degraded high elevation sites in the Siskiyou Crest, determine the influence of soil organic matter, nutrients, soil microbial biomass and activity of soil enzymes (urease, phosphatase, dehydrogenase and celllulase), and soil quality as determined by microbial genetic diversity on the establishment of native tree and grass species. The study is completed and will be published winter 98/99.	**Jim Entry** (208) 423-6553 Agricultural Resource Services **Nan Vance** (541) 750-7302 PNW Research Station (6, 9)
Riparian Disturbance Processes in the Applegate AMA This study was developed to look at disturbance from landslides and erosion and the effect or function of disturbance within riparian areas of the Applegate valley. Data has been collected on the number of disturbances, cause of disturbance, road density, stream crossings, cubic yards of material reaching streams, and coarse woody material delivered to streams. This data is currently being analyzed and reports will be available winter of 1998/99.	**Dave Steinfeld** (541) 858-6105 Rogue River NF (1, 10)
Radiotelemetry of the Habitat Selection of Northern Spotted Owl Determine: 1) If and to what level spotted owls utilize hardwood and hardwood/conifer forests; 2) If and to what level spotted owls utilize young, closed-canopy conifer stands; and 3) Habitat use patterns by spotted owls that lack suitable amounts of habitat within their home range. Project completed and report available.	**Mario Mamone** (541) 899-1812 Applegate RD (5, 10)
The Effects of Vegetation Management within Riparian Reserves This project would begin to answer questions relating to the function of Riparian Reserves of intermittent streams, and the effects of vegetative manipulation in and adjacent to these Riparian Reserves on aquatic, riparian, and terrestrial organisms. Preliminary work to design this long-term (10 year) research proposal is currently underway.	**Jeannine Rossa** (541) 770-2351 Medford BLM **Bob Gresswell** (541) 750-7410 Cooperative Forest Ecosystem Research (CFER) (1, 5)

Microclimate monitoring in Riparian Zones This project monitors the effects of management within upland forest stands on the microclimate of riparian zones where the buffers have been maintained unmanaged. Data is being collected on temperature and relative humidity. Work is being conducted in collaboration with USFS along intermittent streams throughout the Applegate.	**Karen Bolda** (541) 770-2351 Medford BLM (1, 5)
Assessing the Effectiveness of Stand Treatments and Harvest Practices in Producing Desirable Fire Management Conditions Data has been collected to quantify silvicultural and fire management characteristics of stands currently being treated for to produce defensible fuel profile zones on BLM lands. Data collected can be used to determine the effects of fire management treatments on residual stand health. Data collected would also be available to input into a fire growth model, such as FARSITE, to test the effects of these treatments on fire behavior.	**Marty Main** (541) 826-5306 Small Woodland Services, Inc. (2, 3)
All Party Monitoring Project The outcome of this project will be a monitoring program focused on the issues surrounding fish species recently listed under the Endangered Species Act, and will be integrated with requirements of the Clean Water Act. It will facilitate a process for monitoring watersheds across ownership and agency boundaries, including compatible monitoring protocols, central databases, and improved communications between local and distant stakeholders. The purpose of this All Party Monitoring proposal is to explore and develop a model for involving regional and national interest groups in local collaborative activities to ensure that national interests and concerns are included in local thinking and processes.	**Jan Perttu** (541) 899-9982 Applegate River Watershed Council **Lon Patterson** (541) 482-6031 Rogue Institute for Ecology and Economy (1, 4, 5)

Appendix D: Key Agency Participants Applegate Adaptive Management Area

The following list is current as of September, 1998. Feel free to contact any of these people for more information about the Applegate Adaptive Management Area. This is intended to be a partial list, not a complete one.

USDA Forest Service and USDI Bureau of Land Management	Su Rolle (541) 770-2248	Interagency Liaison Applegate AMA Coordinator
	Kristi Mastrofini (541) 482-3333	Research & Monitoring Coordinator
Applegate Ranger District 6941 Upper Applegate Rd. Jacksonville, OR 97530 phone: (541) 899-1812 fax: (541) 858-2401	Mary Smelcer	District Ranger
	(position to be filled)	Community Development Specialist
	Ed Reilly	Planning Staff
	Debbie Whitall	Earth Sciences Staff
	Tom Lavagnino	Planner
	Carol Spinos	Planner
	Bill Warner	Timber Staff
	Tom Dorigan	Fire Staff
	Bill Rose	Fuels Specialist
Ashland Resource Area BLM 3040 Biddle Rd. Medford, OR 97504 phone: (541) 770-2200 fax: (541) 770-2400	Rich Dreyhobl	Resource Area Manager
	Steve Armitage	Forest Staff Officer
	Don Ferguson	Human Resource Coord.
	Bill Yocum	Planning Staff
	Tom Sensenig	Ecologist
	Ken McDaniels	Silviculture Staff
	Jeanine Rossa	Fisheries Biologist
	Greg Chandler	Fuels Specialist
Grants Pass Resource Area, BLM 3040 Biddle Rd. Medford, OR 97504 phone: (541) 770-2200 fax: (541) 770-2400	Bob Korfhage	Resource Area Manager
	John Prendergast	Silviculture Staff
	Doug Henry	Planning Staff
	Tom Murphy	Fuels Specialist

Bureau of Land Management (BLM) 3040 Biddle Rd. Medford, OR 97504 phone: (541) 770-2200 fax: (541) 770-2400	Ron Wenker Jim Russell	District Manager Fire and Fuels Staff
Rogue River National Forest P.O. Box 520 333 W. 8th Street Medford, OR 97501 phone: (541) 858-2200 fax: (541) 858-2220	Jim Gladen Chuck Anderson	Forest Supervisor Planning Staff
Sisykiyou National Forest 200 Greenfield Rd. Grants Pass, OR 97526 phone: (541) 471-6500 fax: (541) 471-6514	Mike Lunn Tom Atzet Robyn Darbyshire (541) 713-7556	Forest Supervisor Ecologist Interim PNW Scientist for the Applegate
Galice Ranger District 200 Greenfield Rd. Grants Pass, OR 97526 phone: (541) 471-6500 fax: (541) 471-6514	Nancy Rose Peter Gaulke Steve Tanner	Distict Ranger Planner, Silviculturist Planning Staff

APPENDIX E: Public Involvement Guide

Applegate Adaptive Management Area

Introduction

Federal land management agencies have a unique connection with the communities that "interface" with public lands--unlike other federal agencies, the impacts of their policies and practices on these communities do not discriminate by economic status, political affiliation, or geography.

In the past we have defined communities as those "of place" and "of interest". Communities of place are those that have been labeled as "timber dependent"; that is, those populated areas that have derived their economic viability based on the extraction and processing of forest products. Communities of interest have included organizations that have made it their mission to monitor and provide input into forest management activities, state and local agencies, and the forest products industry.

Too often land management agencies have found themselves reacting to the positions taken by these various communities; conflict has become entrenched in the implementation of many forest management activities. One of the ways this conflict has manifested itself is through the implementation of the public involvement process mandated by the National Environmental Policy Act. While it is recognized that employees of federal land management agencies are educated professionals committed to the physical sciences (wildlife biologists, soil scientists, silivculturists, researchers, etc.), they are not experienced in the social sciences. This has proved to present a challenge for forest managers; federal land management agencies are just beginning to learn how to work collaboratively with the communities they serve.

It is the intent of this guide to offer some background, resources, and tools to assist in the practical application of an effective public involvement process for the federal land management agencies of the Applegate Adaptive Management Area. This guide is an *introduction* to the public involvement process--a process that has been theorized and documented in multiple forms, yet for which there is no recipe for success.

One of the goals of creating this guide is to facilitate a new level of cooperation between communities and federal agencies in the context of new directions in public land management and community settings; this can only be achieved when citizens, resource managers, and governmental leaders work to support and sustain an open process of integrated community/ecosystem planning.

Overview

Oregon State University professors Steve Daniels and George Stankey write that "The public involvement programs of natural resource agencies have been broadly criticized as unresponsive to public desires" (Daniels, et al, 1996). Professionals in the natural resource field know first hand the impacts of a poorly designed and implemented public involvement process. They also believe that even a solid effort on their part to promote public participation in project planning will always incur some dissatisfaction by an individual or organization and may be viewed as non-responsive or exclusionary. This belief is not necessarily held by citizens.

The purpose of this plan is to create a framework for the design and implementation of a process to (1) minimize this dissatisfaction by creating an environment where the public has the opportunity and information necessary to understand and contribute to the decisions made by land management agencies and natural resource professionals; (2) provide a venue for these agencies and professionals to identify and respond to variety of public issues and ensure that these issues are represented in the final project decisions; and (3) create a environment where all can share and learn from each other to enable agency personnel to build on successes and correct mistakes.

Research has indicated that the manner in which public involvement is conducted can affect how the public reacts to ensuing decisions; the procedures used to arrive at decisions are significant determinants of satisfaction separate from the effect of outcomes. The perceived fairness of the process can affect public satisfaction as much as the substantive nature of resulting decisions. Therefore, it is more useful to seek progress rather than solution. Solution connotes that everyone is satisfied, every issue is resolved, and the matter is settled for all time; none of which are likely. But progress is virtually always possible (Daniels, et al, 1996).

Background

This guide is intended to provide a framework for developing a public involvement process for projects on public land. It is not intended to be viewed as a definitive process; but rather a guide for interdisciplinary team members to use in the course of developing a process within the context of project planning. An effective public involvement process can build a foundation for productive, sustained relationships.

The arena of community involvement in project planning has different meanings, goals, and expectations for different people. It is important to realize that a public involvement process cannot be successfully performed by taking a “one size fits all” approach. Time, funding, project complexity, and personal style will influence the final public involvement efforts. It takes a variety of methods and approaches to identify and engage community members and interest groups in a public involvement process; some that work well for one project might prove to be unsuccessful when applied to others, so experimentation is encouraged. Usually, less intensive methods will be used for projects that may be considered less complex or controversial, although caution should always applied; what may appear to be a straight-forward project to an interdisciplinary team may illicit an strong reaction by the various publics they serve. A more extensive process will be necessary for projects which are more complex, controversial, or issue laden. Some general strategies for promoting progress in a public involvement process include:

- Consider the option to appeal to self-interests; make sure that individuals can see the rewards by participating.
- Recognize even the smallest and most limited contribution.
- Define tasks and level of involvement up front.

- Look for skills, not names.
- Use people currently participating to recruit others.
- Use the time of others efficiently.
- Reward participation and those that assume leadership roles on an appropriate level.
- Make sure that those who become involved are made aware of any results, changes, etc.
- Appropriately present information as clearly and cleanly as possible.
- Create forums where the public can serve as a source of additional expertise and data for decision making.
- Take proactive measures to identify, address, and track issues early in the process.
- Implement processes that seek to avoid conflict and gain understanding and support; recognizing that conflict can surface constructive options.
- Develop (if appropriate) partnership opportunities for project implementation and funding.

The Federal Advisory Committee Act and Public Involvement

Federal agencies are challenged with designing ways for people to have access into, and contribute to, land management processes. Jean Nelson Dean, in her article "Central Cascades Adaptive Management Area", describes how the Federal Advisory Committee Act (FACA) affects public involvement and consensus-based decision making:

> "FACA, which passed in 1972, regulates how federal representatives and non- federal individuals or groups can interact with each other, and how federal representatives can obtain advice and recommendations from non-federal individuals or groups. FACA passed in order to ensure equitable access to the federal decision making process. Prior to FACA many individuals felt that special interests were allowed undue influence into federal decisions. FACA has many different aspects, but what it has meant...is that local partnership groups cannot become preferred sources of advice or recommendations to federal officials-and that federal officials cannot regularly sit with any group to develop options for managing the federal lands unless they are a formally chartered group. This changed many public and federal individuals' pictures of how the public could be involved more fully..."

This interpretation of FACA has generated the perception by many community and collaborative groups that FACA is an obstacle to having a voice in agency decisions (Rieke, 1997); although Rieke makes the argument that these groups are generally not subject to FACA as:

> "Only if such a group were so closely tied to a federal agency as to be subject to strict management or control by the agency would it fall within the "utilized by" category of advisory groups and, therefore, be required to comply with FACA's procedural strictures"

Differences in our communities--both of place and of interest--increase the challenge to create public participation/involvement efforts that meet the needs of agencies and the public. For instance, the Rogue Institute for Ecology and Economy's social assessment of the Applegate Valley, "Words into Action", identified a wide range of concerns and values; the people in the eight unincorporated communities in the valley have very diverse professions, incomes, and lifestyles. Any public involvement process developed by a project planning team will initiate activities that will appeal to a wide range of values and interests, resulting in information and input that is balanced and represents the diversity of the public concerned with forest management activities.

Incorporating Community Goals into Project Planning

As stated earlier, federal agencies have been viewed by some members of the public as being unresponsive to the their needs. Federal land management agencies have a reputation of placing import only on ecological/biological values. In recent years, the importance of incorporating community values into forest management activities has been recognized in order to foster cooperation, learning, and open communication that will improve ecological stewardship and strengthen communities. In fact, incorporating community goals is outlined in the Northwest Forest Plan.

One of the objectives of a successful public involvement process is to bring diverse values into the management of forests and overcome conflict over forest management issues. A successful public involvement process will design processes to identify desired outcomes for both land management agencies and communities, along with a plan for an outcome specific assessment to determine whether goals were achieved. This evaluation can be comprised of both qualitative and quantitative analysis techniques and can be performed to measure the "success" of a public involvement activities, as well as the success of the project based on ecological, economic, and social values and objectives. A good place to start is with the recently completed "Applegate Valley Strategic Plan", in which residents created a "vision" for the future of the valley. Each of the four core communities that were documented in the process developed goals and action items for the management of natural resources.

Monitoring and Evaluation

Monitoring and evaluation are essential tools to the concept of adaptive management; they help determine if adaptive management programs are effective (Shindler and Greene, 1997). Shindler and Greene have developed a framework for monitoring and evaluating the interactions between the public and federal land management agencies, as well as ideas from citizens, agencies and researchers on AMAs. The framework provided is more qualitative than quantitative in nature, and recognizes that there is still much to learn about implementing public involvement processes within the adaptive management concept. Some key points to consider when working within the offered framework include:

- Monitoring and evaluation is an iterative and cumulative process; there is no formula for success.
- Agency and citizen representatives must collaborate as an assessment team in the process.
- Agencies and citizens may have different goals for interactions; and when carried out interactively, monitoring and evaluation can help build relationships.

- Documentation should be descriptive; recorded information needs to provide extensive details.
- Information should be gathered through multiple methods.
- It is important to understand the broad situational context in which the process takes place.

The framework developed also describes the possible goals and characteristics for successful citizen and agency interactions, and provides an outline for development of a monitoring and evaluation plan. It is recommended that a group or "task force" comprised of agency representatives and citizens be formed to apply the framework to selected adaptive management situations, with adjustments and adaptations being made as more is learned about the applied process.

Public Review of Guidelines

These guidelines were reviewed by both agency personnel and local citizens of the Applegate Adaptive Management Area. Many people provided valuable input, and adjustments were made to the guidelines as directed by the comments. These comments are available for review by contacting the Community Planner on the Applegate Ranger District.

Summary

As stated earlier, this document is to be viewed as an *introduction* to the public involvement process. There are many theories, strategies, and tools available to create a project specific public involvement process. The Resource list that is provided is a good place to begin; look for other opportunities to learn more. Agencies have training programs available, and higher education institutions are a good source for the latest information on successful (and not so successful) strategies.

Following are some strategies to promote public education and involvement in the region; a description of standard activities undertaken by interdisciplinary teams; a reference list of resources available, e.g., papers, books, speakers; and a list of Applegate Valley Community Organizations.

General Strategies to Promote Public Involvement

Even before project planning begins, federal land management agency professionals can implement strategies to promote broad based participation in land management activities. Members of local and national organizations live here; they are concerned with activities in their region. Keeping them informed of federal plans, strategies, and activities will help build the relationships necessary to promote input when project planning begins.

Specialist Presentations

Consider giving presentations to local service, civic, and community organizations in the region, as well as to county, city, and town government. These include Rotary International, Kiwanis and Lions Clubs; the Rogue Valley Civic League; Rogue Valley Council of Governments; County Commissioners; environmental organizations; local municipalities. Topics do not have to relate to specific projects, although they may; contact these local organizations to present information on what you do, who you are, how projects may affect local communities, the Northwest Forest Plan, etc.

Become a Professional Source of Information

Make contacts to be placed on speaker panels for conferences held by forest products industry associations, research organizations, and national and local environmental organizations. Develop a one page "biography" to inform organizations on the topics you can present, and distribute.

Create Issue Specific Study Groups

Consider setting up a study group around a specific topic or a project. Study groups can examine and discuss biophysical conditions, the social and economic environment, and local citizen's values and visions for their communities and forest lands. The primary purpose of a study group will be to explore resource management issues and the ecological well-being of forest lands, and to share knowledge about the region's communities and natural environment. They will take a problem solving approach to ecological and community topics, help to articulate social and cultural issues, and help to gather scientific and community information-all of which can be used by federal land management agencies for future project planning. Topics may include:

- Brush field management
- Road maintenance, renovation, closures obliteration
- Riparian restoration prescriptions
- Shaded fuel breaks and fire management zones
- Native grass seed propagation and planting
- Non-commercial thinning of stands
- Old growth
- Water quality
- Recreation issues
- Relations/communications between FS and BLM, and public.

Interdisciplinary Team Activities

The Interdisciplinary Team is responsible for the implementation of the public involvement process in project planning. This list of activities is comprised of "boiler plate" tasks. The team will determine what other activities are appropriate in relationship to the complexity of the proposed project. Team members may want to consider bringing in staff from the Public Affairs, Environmental Education, Rural Community Assistance, or Human Resources departments to offer input and/or facilitate in the development of the public involvement process.

It is strongly recommended that a project planning team member conduct a literature review of the public involvement process, collaborative planning, and other related topics and present a summary to the team at the first meeting.

At the first team meeting, members will identify two people who will be responsible for tracking the process and acting as key contacts between the team and the public. These members should be chosen based on their skills in working with people and their ability to record and present material.

The team may want to consider setting up a regular schedule of meetings during the planning process and inviting the public to attend. This schedule can be passed on in Scoping letters, mailed to community groups, and posted on local bulletin boards. After the first meeting, the two team members can personally inform key contacts in the community of this schedule.

Following are some steps that may help the team develop the public involvement process:

- Identify possible/potential biological, social, political, or cultural issues that may result, at outset of project planning, e.g., regen cutting, road building, sanitation treatments, policy implications.
- Review history of project and/or project area, e.g., past conflicts, issues, tensions.
- Identify affected publics, and those that feel they will be affected.
- Identify level of involvement expected from these publics.
- Appoint team contacts and documentors for public involvement process .
- Compile list of pertinent documentation, publications relating to project.
- Develop time-line for project planning; highlight **required** review periods, identify **desired** involvement points, and identify **potential "critical paths".**
- Identify a range of forums for communication, e.g., field trips, formal presentations, focus groups, flyers, press releases, etc. Determine where each should be performed within the time-line.

The team members assigned to oversee the public involvement plan will then be responsible for managing and documenting the public involvement process, although all team members should participate on some level; for instance, if an issue emerges concerning riparian areas, the team hydrologist and fisheries biologist will be asked to directly participate. At this time, it would be a good idea to make a list of available expertise and assistance from appropriate sources outside the agency, e.g., non-profit organizations, community leaders, watershed council staff, etc., to help deal with potential issues (see Resource List). The information generated from any meetings will be recorded to be documented in the Environmental Assessment, Decision Notice, or other appropriate document.

Developing a Public Involvement Strategy

It is recommended that a public involvement strategy be outlined as part of project planning. The team may want to use some of the suggestions illustrated in the Activities section, remembering that the level and intensity of the strategy will depend on the complexity of the project. The team may want to use an action item based format to display objectives, actions, the who/what/when for the plan. Update the plan as needed if the scope of the project intensifies, requiring additional work, or is less intense than expected, needing less actions. Use a variety of tools to make your action plans successful. For projects that have high levels of community interest, look at more extensive collaborative processes (see the Resource section for references). There are numerous ways to accomplish this, starting with involving community members to develop an outreach or community involvement action plan for the project. Another tool is to use an agency/community review committee to monitor the progress of the project. Look at various collaborative facilitation processes to involve interests in each phase of the project.

Before developing a project public involvement plan, the team may want to discuss what expected outcomes are desired. The following outcomes were very positively received by the citizens who reviewed the plan:

- Increased public awareness and understanding of the agency mission.
- Increased understanding and acceptance of collaborative processes.
- A feeling that public contributions are acknowledged and important.
- Strengthened relationships with communities, both of place and of interest.
- Agency personnel are knowledgeable about and supportive of collaborative processes.
- An increased awareness of the knowledge and skills that all participants bring to the project.

The team may want to incorporate some issue management actions into the public involvement plan. According to Mason, et al, an issue is "Any event, trend, condition, internal or external, which, if continued, will have a significant effect on how we will perform...". The planning team may want to develop strategies to manage issues that emerge over the course of project planning and implementation. Some basic questions to ask are: Has the issue been addressed already by the team? If not, what is the best way to address the issue? On an individual basis, or should a presentation be prepared to facilitate discussion? What is the best way to present information on the issue? What tools does the team need to learn more about the issue? Before initiating a response to an individual or group on an issue, the team should give consideration to the following points:

1. What can we do to get a fairly good understanding of the individual/group's relevant value systems? i.e., what are the likes, dislikes, and major concerns of each of the interests that are relevant to this project?
2. How does this individual/group perceive our agency/organization and its role in developing this project?
3. How does this individual/group perceive the project and its likely effects?
4. Does this individual/group have a reasonably accurate perception of the problem(s) that the team is trying to solve with this project?
5. Does this individual/group have a pretty good grasp of what the range of feasible alternatives include?
6. Does this project create effects-or appear to create effects- that will prevent this individual/group from either further participating in the process or initiating disruptive activities?
7. Does this individual/group have some other major problem-one that, on the surface has nothing to do with the project, but which might nevertheless prevent this interest from supporting the project?

It is important that emerging/potential issues be identified early on in the planning process, before they become disruptive.

Identify Communities of Interest and Place
Local residents and land owners can be identified and verified using tax lot data. Contact your unit's GIS specialist to generate this list once a proposed project area is identified. They will need the legal information (Township, Range and Section) of the project area. Please include the distance outside the project area you would like them to identify a resident/landowner list, e.g., "all names within 1 mile of project area".

Since tax lot data is not 100% reliable and does not include renters, it is also a good idea to contact community leaders/neighborhood contacts to determine if all/most key residents are identified. If no one on the ID Team knows anyone in the project area, send out an "All" message on the district to ask if other employees can make that contact for you, or attend local community groups meetings and ask their help in identifying key contacts.

Other interested publics may include, but are not limited to:
Local Residents
Land Owners
Elected Officials
Community Groups
Environmental Interest Groups
Fisheries Interests
Recreationists
Media
Agency decision makers/agency employees
Other local, state, federal agencies
Timber Interests
Historians and Historical Societies

Each agency should have a master list is on file on the local network PC's of other publics who have expressed interest in receiving announcements of proposed projects. This list will also identify agencies, organizations, and individuals who have requested they be notified when a specific document is being prepared for a proposed action (EIS, EA, etc.). This file can be copied and edited for specific concerns. Additional names can then be added that are specific to the project location.

Once all publics are identified, their names, addresses, organization affiliation, and specific interests should be entered onto an Excel Spreadsheet. Mailing labels can then be generated from the spreadsheets.

Compose Scoping Letter

Letters that notify the public of any intent to develop a project should convey information in a format that is accessible to any and all interested publics. Language that is free of technical jargon, acronyms, and institutional phrases should be used. Consider whether an accompanying glossary of terms is appropriate or needed, e.g., fuel break, basal area, Environmental Impact Statement. Individuals assigned to serve as public contacts for the project will track all outgoing letters and record all incoming responses. Issues of concern will be brought to the attention of the project team. These letters might include some of the following components, if appropriate:

1. *Express the responsibility to develop project*

- Identify lead agency, organization; include project partners and identify role of each.
- Identify the specific types of problems that can/may be prevented by implementing the project.
- Define how implementation of the project will prevent these problems.
- Establish legal responsibilities and mandates.
- Include good quality maps and other visual representations.

2. *Create understanding of planning process*:

- Briefly explain the planning process.
- Identify points in process where public input is both required (comment periods) and desired (collaborative/partnership opportunities).
- Explain the point in the process where the project is now, and what comes next.

3. *Identify opportunities for involvement*:

- Give some examples of how public can get involved.
- Provide schedule of field trips, presentations, etc.
- Identify potential issues, possible activities that might occur during project implementation.
- Ask for feedback: Is the schedule, venue for information dissemination adequate/appropriate? What would the public like to review specifically?
- Provide opportunities for the public to inform the team of additional/needed information.
- Give advice on how comments can be related effectively to the team, e.g.:

1) Does the comment specifically refer to the project or document?
2) Does the comment specifically refer to specific alternatives?
3) Does the comment state specific action regarding the alternative?
4) Does the comment address the project planning/analysis process?

Letters will be sent to all interested publics' identified. Responses to project announcement letters will be given to the ID Team Leader to include in the project notebook (if agency project).

Contact concerned individuals

Some projects may require personal contacts, especially with adjacent land owners and residents. Be prepared with good written information to hand out that may include, but is not limited to maps, aerial photographs, silviculture prescriptions, and other visual aids that demonstrate the objective of the project. Be prepared to actively **listen** and **learn** from residents. While visiting residents, team members should ask individuals if they know of anyone else who might be interested in hearing about the project. You might consider asking a resident to host a coffee and dessert potluck at their home if there seems to be a number of interested residents. During the course of these phone calls/visits, provide information on locations of local sites that have been similarly treated.

Create Public Forums

This is a critical step in the public involvement process. If the information relayed through the Scoping letter is not comprehensive enough, or is too complex, by the time the team holds public meetings/presentations/field trips, people will have already formed their views which are based in emotions such as confusion, frustration or anger. Public meetings can set the stage for individuals, armed with intense emotions and inaccurate information, to rally support to kill the project before good data and sound rationale are demonstrated. The team will have to time the Scoping letters with public meetings/presentations and individual contacts; meetings often come too late in the public involvement process to promote a collaborative environment. Some objectives for holding public meetings are to develop:

- Trust through dialogue and action.
- Understanding through pro-active, participatory education programs.
- Relationships that seek common ground.

Public Meetings

Public meetings can be overused; people have been to hundreds of meetings, many of which have been unproductive. Consequently, attendance and/or participation in public meetings can be minimal; it doesn't mean people don't care or have no opposition to the project. Every effort should be given to:

- Schedule meetings when it is convenient for people; this may mean weekends or evenings.
- Distribute an agenda beforehand so people will know what to expect.
- Make the meetings just long enough to accomplish objectives.
- Provide information for those that cannot attend to receive meeting minutes, handouts, etc.
- Provide feedback mechanisms.

Depending on the scope of the project, a project presentation can be presented to community/special interest groups; at the very least, this should be done at an Applegate Partnership meeting. Contact the Applegate River Watershed Council at 899-9982 to schedule time on an agenda. Some feedback materials should be created to initiate issue identification at public meetings, e.g., simple forms asking questions, a focus group process (see Resource List) where feedback is recorded on flipcharts, etc.

Effective facilitation is key to clarifying objective, focusing discussion, and providing good direction and leadership. Consider asking an objective, non-agency person to facilitate. Public perception may be that decisions have already been made; it is important to convey that this is not the case, and that any input can make a difference. Updates on the public involvement process should be composed on a regular basis and distributed to the team members and concerned publics.

Field Trips

Field trips are a good tool to mix researchers, community members, and land managers together and to allow relationships and networks to develop. Team members can schedule a series of field trips for some projects at different points in project development. In some instances, field trips to similarly treated areas may be the first step. Field trips can either focus on an emerging issue, or can be a general project overview and report. Ask community members that you know will attend what kind of information they would like to be presented. A team member will serve as a recorder for each field trip and presentation. Most field trips will begin with a presentation that includes the following components. These components are listed to serve as a guideline; it is not meant to be considered exhaustive. The level and intensity of presentation content and material will be driven by the level of interest expressed by involved publics, and the point in which the planning process the project is currently involved. At each presentation/ meeting/field trip:

- A sign up sheet to record participants will be passed around.
- Relevant documents and publications will be available to for distribution.
- Appropriate visual aids will be used to demonstrate project objectives, i.e., maps, slides, overheads.
- Appropriate specialists will be brought in to address specific issues/components of the project as required.

Presentation Content Ideas:

1. Describe the content of your presentation
2. Give a Project Overview
3. Describe parameters of project- what is the project's direction and focus?
4. Identify project objectives- what is the project trying to accomplish?
5. What are our priorities- was more weight given to one concern over another?
6. What is the relationship between this project and the adjoining area, other projects, other land allocations?
7. What mitigation measures might be employed?
8. What did we consider early on and was dismissed? Why?
9. What are the trade-offs?
10. Where are we in the process and what's next?

The team members responsible for documenting the process will track issues identified by individuals/organizations and record pertinent quotes to adequately capture the level of concerns raised. Follow up actions may be needed by the public contacts and appropriate specialists on any issues of concern. These follow-up actions could include personal contacts, neighborhood meetings, and field trips

Create Legal Advertisements

A legal advertisement in local newspapers can be published during the Scoping phase, public comment periods, and when a decision is made. The legal ads to the paper of record will contain all necessary information to the public regarding the Proposed Actions, including the contact person and telephone number. Field trip and presentation opportunities can also be included.

Prepare Article for Applegator and other Media

Proposed projects should be described and updated in the Applegator. The Bureau of Land Management and the USDA Forest Service create a project update that is listed by watershed and published three times a year. A more detailed, separate article should be written describing the project. Maps and/or photos should accompany the articles. As in the Scoping letter, language should be clear and technical jargon and acronyms should be avoided. Consider asking a non-agency person to review the article. It may be appropriate to develop a news release informing the public of a more detailed version of the project than is required by a legal announcement. Once a news release is created, it can be distributed via fax to all local radio, television, and newsprint media in the Jackson/Josephine County area.

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Unknown. **The Community of Interest and Collaborative Decision Making Models.**

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Community Organizations in the Applegate

Residents in the Applegate Valley represent a diversity of interests. This is exhibited in the groups (both formal and informal) and organizations that call the Applegate home.

Organization Name	Contact Name	Number/Address
Provolt Grange	PO Box 123 Williams, OR	97544
American Legion #50	Charles Rabjohn	846-6666
American Legion Auxiliary	Violet Lansberry	846-6666
Williams Rural Fire Protection Dist. Bd.	Tom Pullen	846-6341
Applegate Core	Sioux Rogers	846-7736
Applegate Partnership	Jack Shipley	846-6917
Applegate Valley Community Forum	Pat Gordon	899-7655
North Applegate Watershed Protection Assoc.	Maggie Purves	846-7412
Applegate Information Center		899-7388
Applegate River Watershed Council	Jan Perttu	899-9982
Applegate Watershed Conservancy	Jan Perttu	899-8036
Applegate Lions	Ed Temple	899-9982
Applegate Valley Community Center		899-1251
Applegate Valley Garden Club	Donna Gavin	899-1718
Applegate Valley Historical Society	Myrtle Krouse	846-6544
Buncom Historical Society	Reeve Hennion	899-7656
Carberry Creek Association	Greeley Wells	773-7471(7053)
Communiversity	John Rickert	846-6041
Dakubetede Environmental Education Programs	Chant Thomas	899-1712
Forest Creek Community Association	John & Marguerite Black	899-1422
Friends of the Ruch Library	Janis Moore-Tipton	899-7438
Friends of the Applegate Library	Isabel Goode	846-6968
Friends of the Williams Library	Bob Chase/Pat Rickert	846-6041
Jackson County Stockman's Association	Bill Drewien	773-5077
Josephine County Farm Bureau	Connie Young	846-6051
Logtown Cemetery	John Black	899-1422
McKee Bridge Lions	Gordon & Dorothy Livingston	899-1302
Threatened and Endangered: Little Applegate Valley (TELAV)	Chant Thomas/Tracey May	899-1696
Thompson Creek Residents for Environmental Education (TREE)	Chris Bratt	846-6988
Upper Applegate Grange #839	Clarence & Evelyn Williams	899-2222
Murphy Citizens Advisory Committee/ Murphy Neighborhood Association	Larry Peterson	862-2107
Ruch T.O.P.S. (Take Off Pounds Sensibly)	Marguerite Black	899-1422
Jacksonville/Applegate Rotary	Ed Frutchey	899-8750
Williams Citizen Advisory Committee/ Town Council	Claudia Beausoliel	846-6092
Williams Grange	Patty Johnston	846-6358
Williams Creek Watershed Council	Randy Carey	846-6481

Appendix F: Internet Information

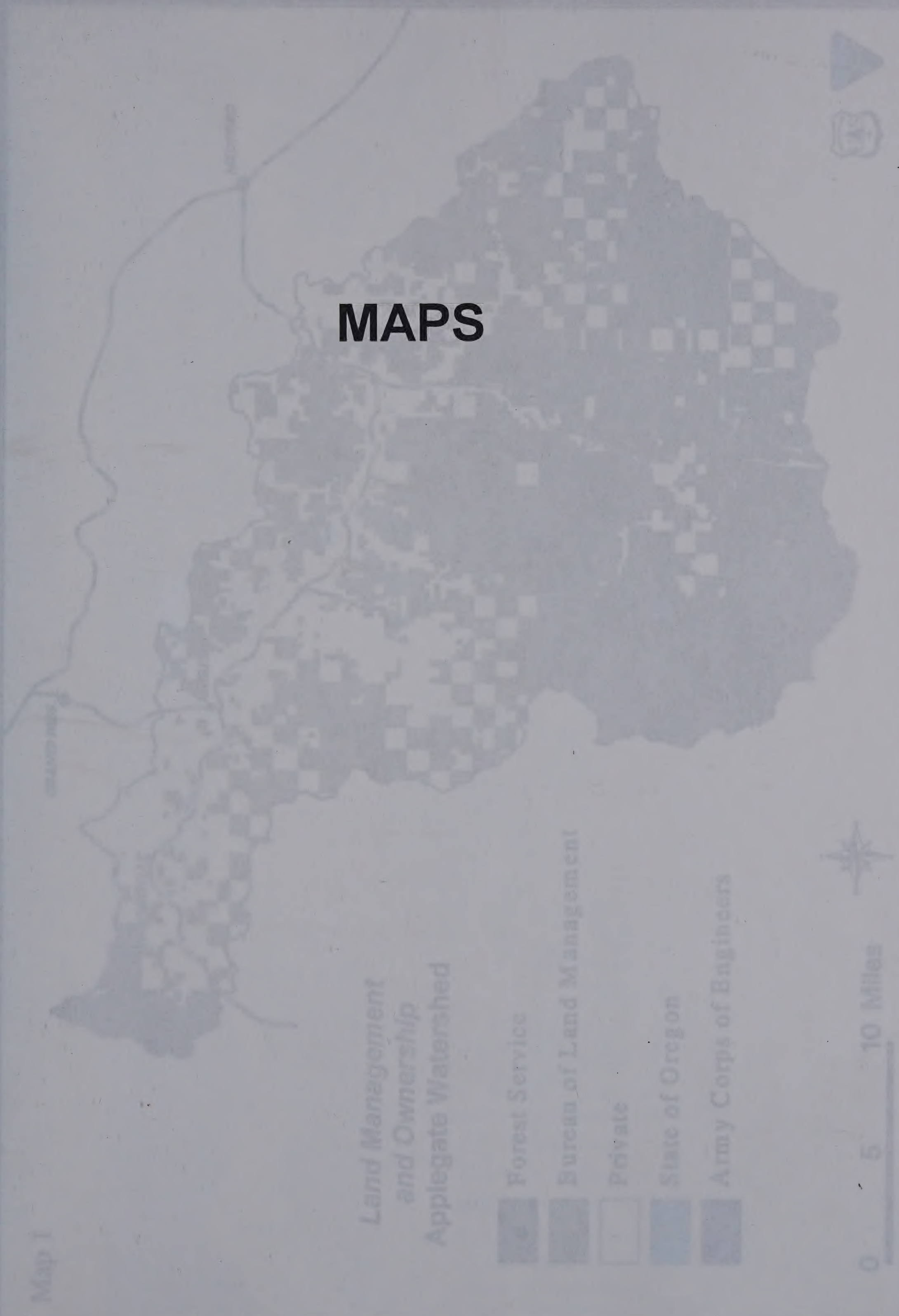
Access to various Home Pages is listed.
Applegate Adaptive Management Area
(as part of the Applegate River watershed Home Page):
http://id.mind.net/community/app
Applegate Adaptive Management Areas Web page: http://teleport.com/~amanet>
International Model Forest Program: http://www.idrc.ca/imfn
Rogue River National Forest: http://www.fs.fed.us/r6/rogue
Siskiyou National Forest: http://www.fs.fed.us/r6/siskiyou
Medford District, Bureau of Land Management: http://www.blm.gov/medford/

The Government Information Locator Service (GILS) is an electronic directory of public information available from the federal government that can be easily accessed by the public. Access to GILS can be made either directly through the Internet or through an intermediary such as one of the 1,400 Federal Depository Libraries.

(1) On the World Wide Web: http://www.usgs.gov/gils
(2) Government Printing Office: http://www.access.gpo.gov/su_docs/gils.html
(3) Through the Commerce Department's National Technical Information Service (NTIS)
Federal World Information Network: http://www.fedworld.gov

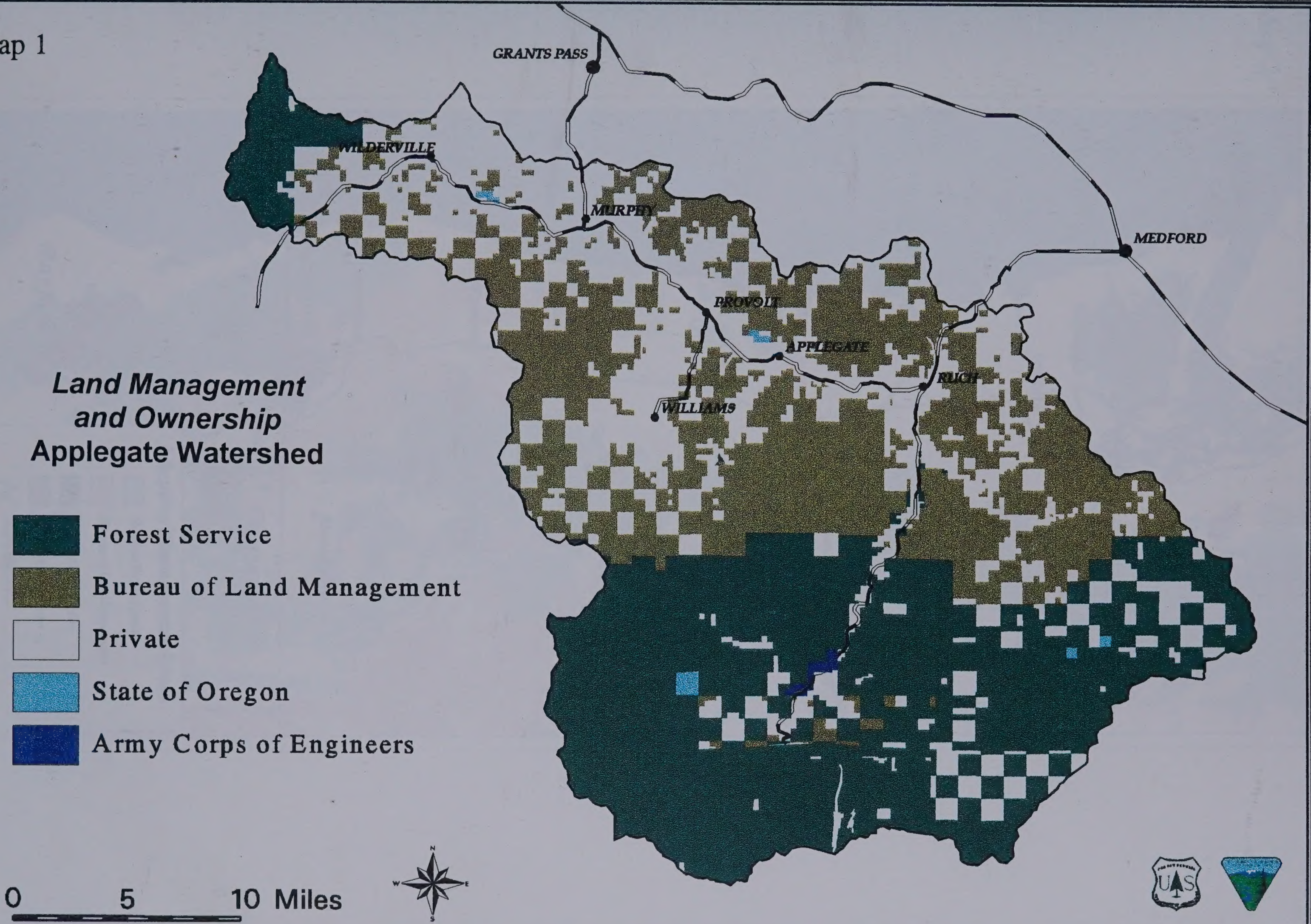
The Econet Western Lands Gopher (WLG) provides text files on land use issues that affect Western lands in the United States. Examples include forests, wilderness, public lands, rivers, mining, ecology, wildlife, timber, agriculture, sustainable development, and environmental justice. The WLG is a free service to anyone with Internet access.
Contact is: gopher.igc.apc.org
Contributions are encouraged and can be sent for upload to wlg@igc.apc.org

MAPS

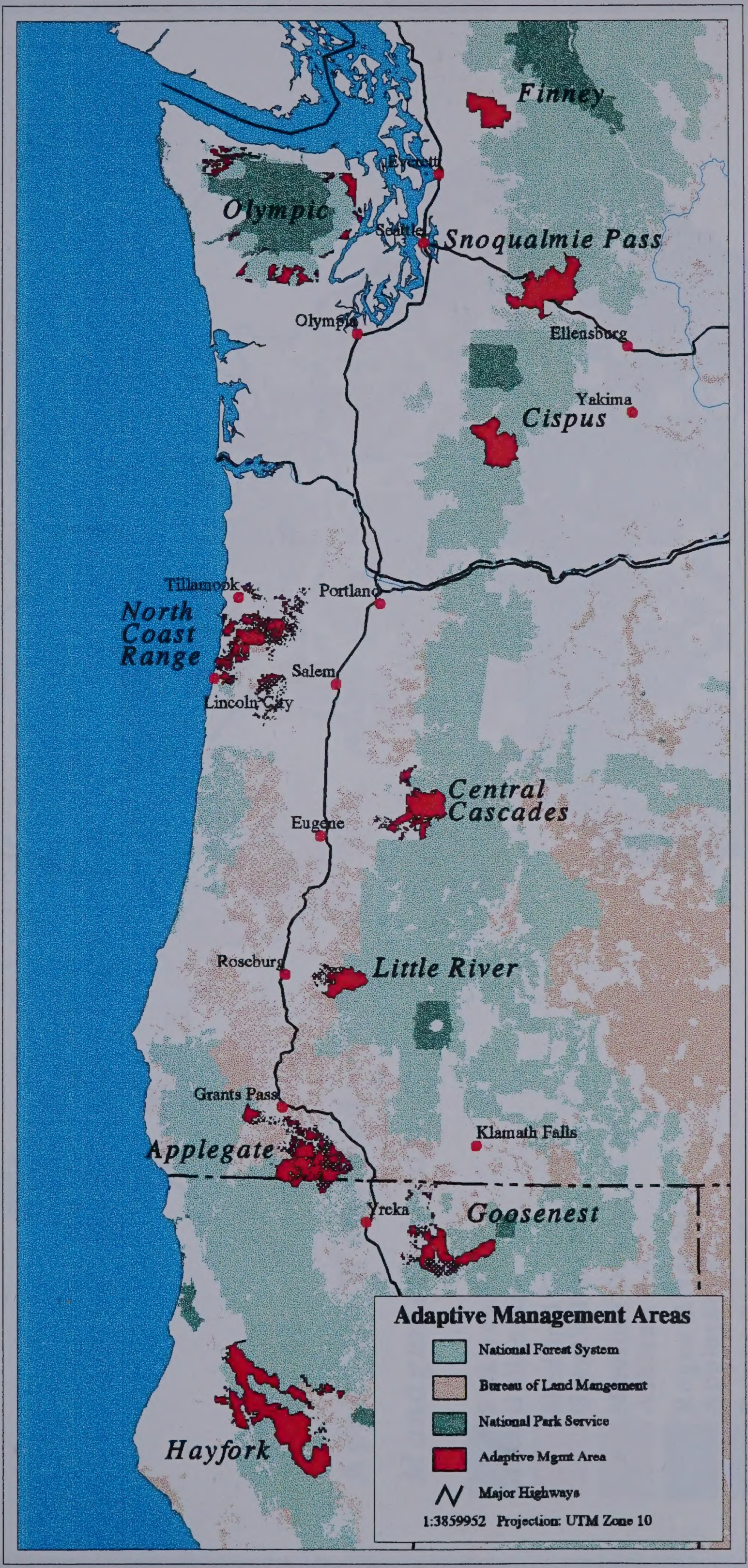

Map 1
Land Management
and Ownership
Applegate Watershed
Forest Service
Bureau of Land Management
Private
State of Oregon
Army Corps of Engineers
0
5
10 Miles

Map 1

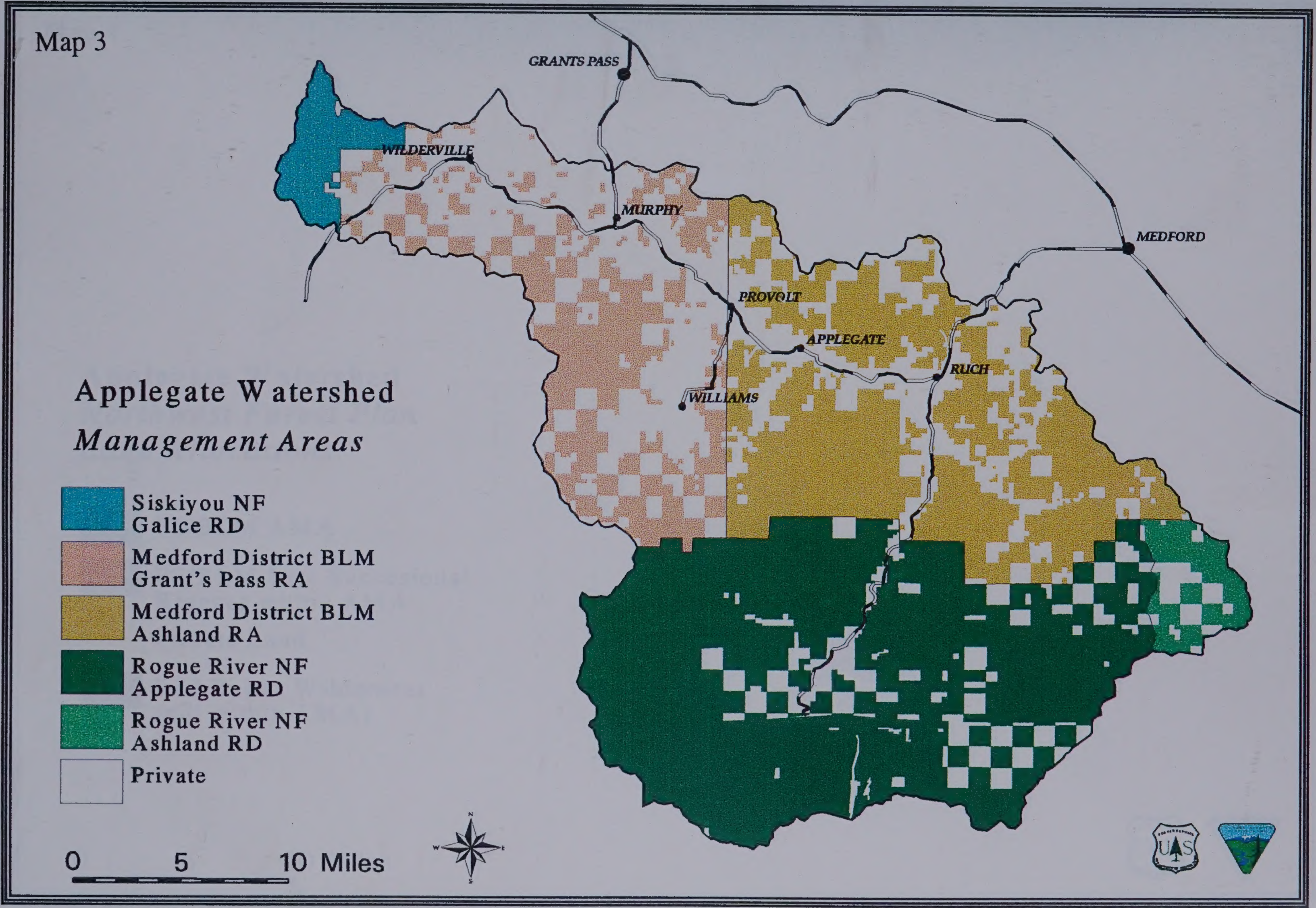
Land Management and Ownership Applegate Watershed


GRANTS PASS
WILDERVILLE
MURPHY
PROVOLT
APPLEGATE
RUCH
WILLIAMS
MEDFORD
Forest Service
Bureau of Land Management
Private
State of Oregon
Army Corps of Engineers
0
5
10 Miles
N
W
E
S

Map 2


Finney
Everett
Olympic
Seattle
Snoqualmie Pass
Olympia
Ellensburg
Yakima
Cispus
Tillamook
Portland
North Coast Range
Salem
Lincoln City
Central Cascades
Eugene
Roseburg
Little River
Grants Pass
Klamath Falls
Applegate
Yreka
Goosenest
Hayfork
Adaptive Management Areas
National Forest System
Bureau of Land Mangement
National Park Service
Adaptive Mgmt Area
Major Highways
1:3859952 Projection: UTM Zone 10

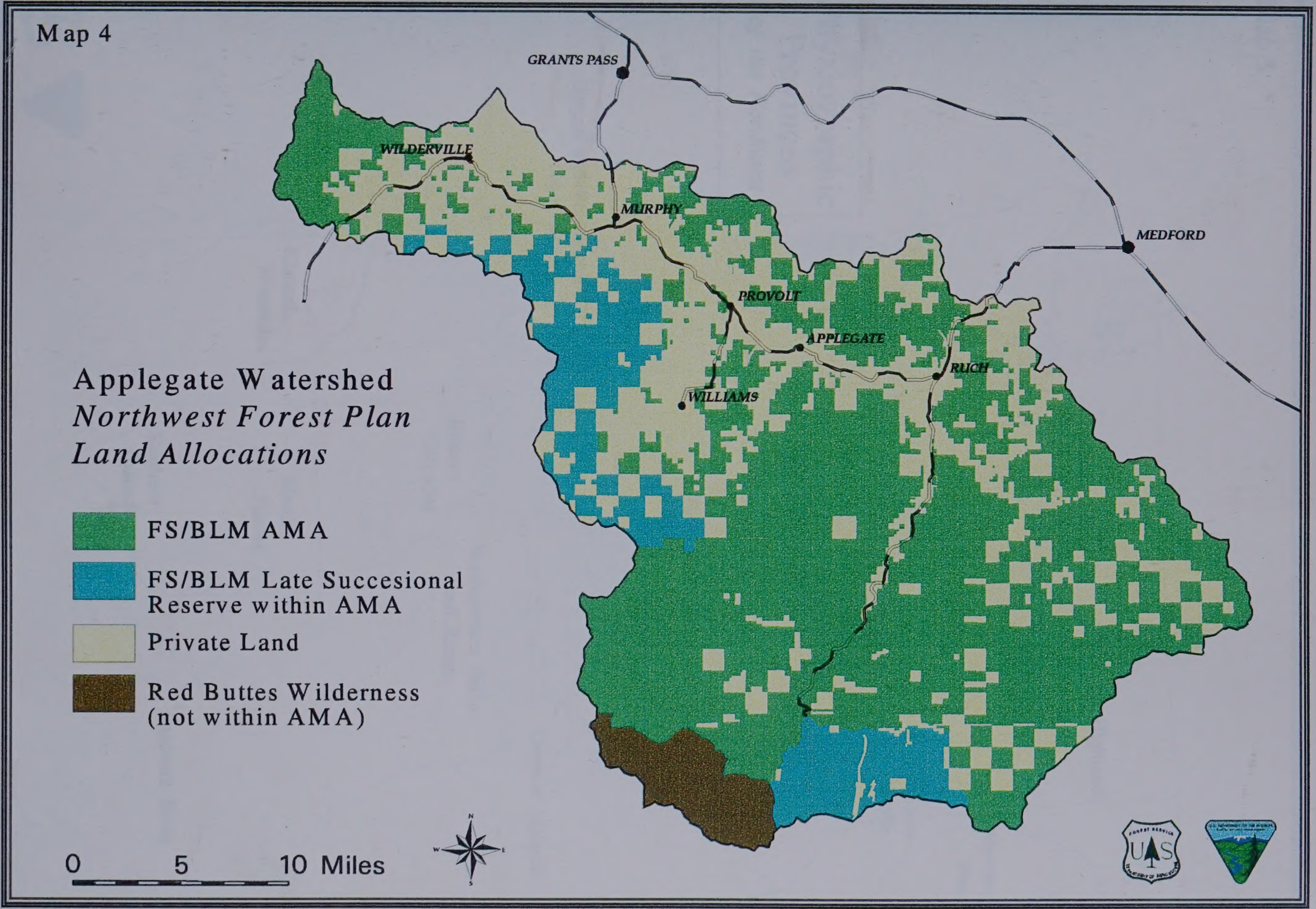
Map 3



Applegate Watershed

Management Areas

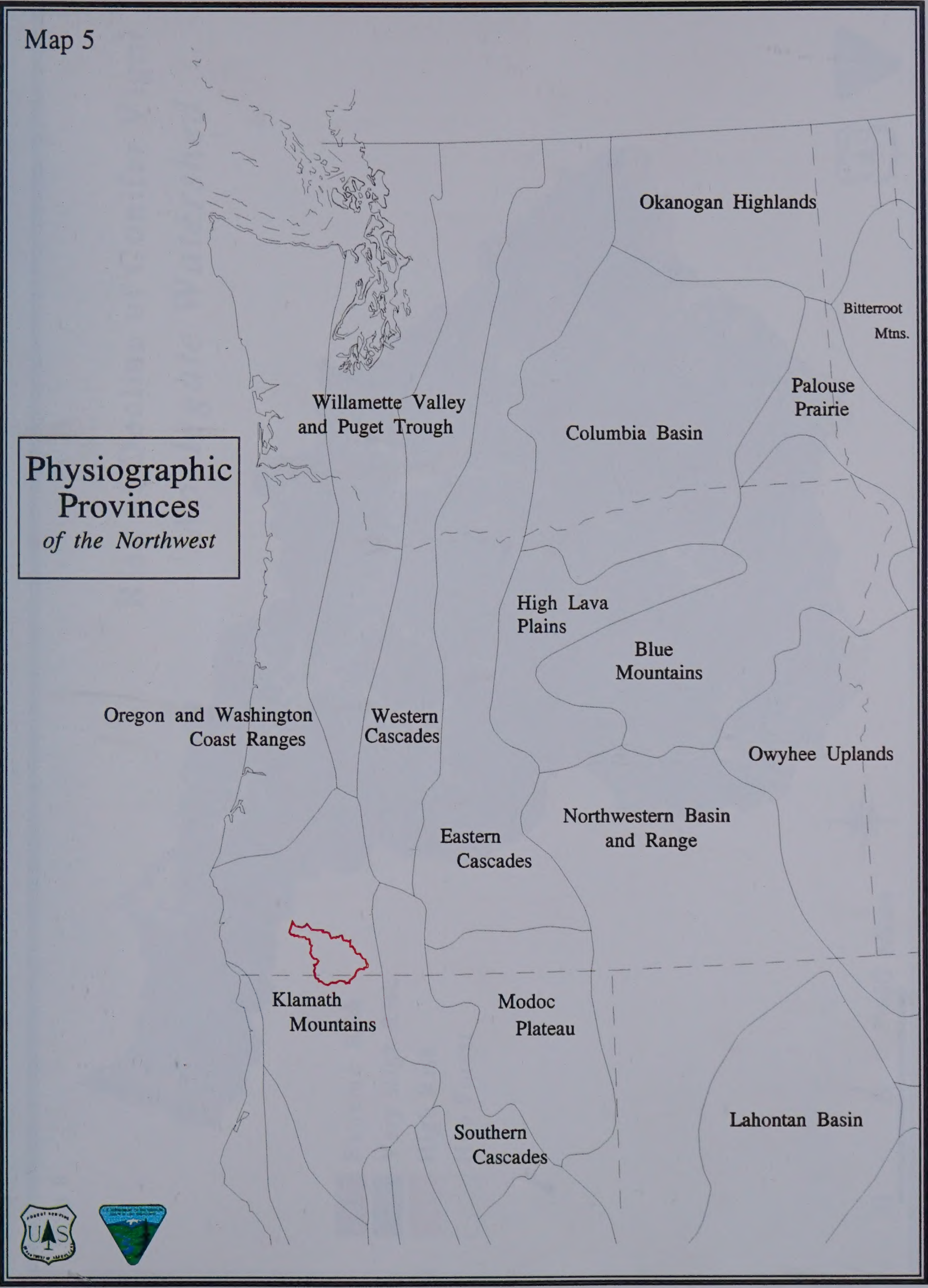
GRANTS PASS
MEDFORD
WILDERVILLE
MURPHY
PROVOLT
APPLEGATE
RUCH
WILLIAMS
Siskiyou NF Galice RD
Medford District BLM Grant's Pass RA
Medford District BLM Ashland RA
Rogue River NF Applegate RD
Rogue River NF Ashland RD
Private
0
5
10 Miles
N
S
E
W


Map 4

Applegate Watershed
Northwest Forest Plan
Land Allocations

GRANTS PASS
MEDFORD
WILDERVILLE
MURPHY
PROVOLT
APPLEGATE
RUCH
WILLIAMS
🟩 FS/BLM AMA
🟦 FS/BLM Late Succesional Reserve within AMA
⬜ Private Land
🟫 Red Buttes Wilderness (not within AMA)
0
5
10 Miles
N
S
E
W

Map 5



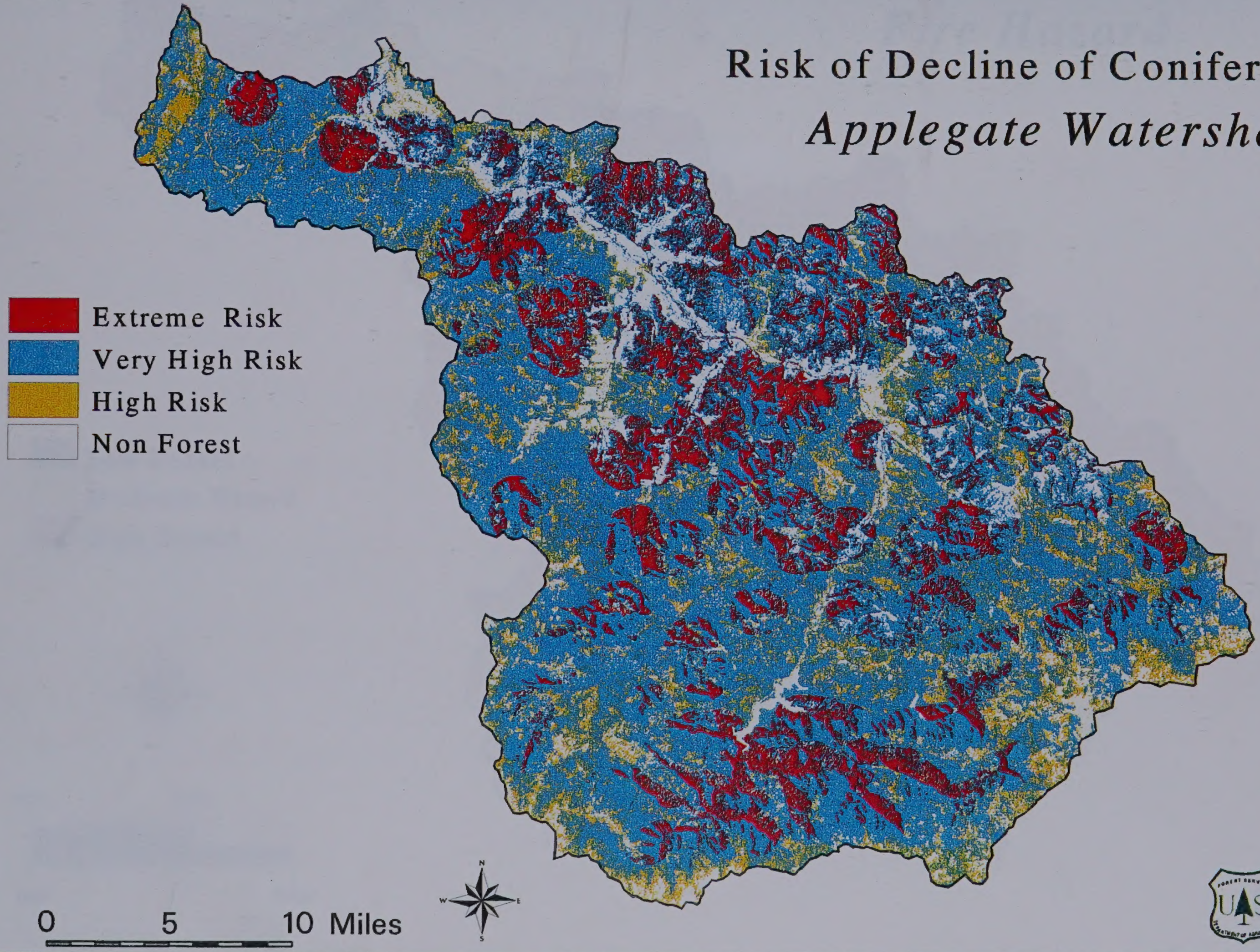
Physiographic Provinces
of the Northwest

Okanogan Highlands
Bitterroot Mtns.
Palouse Prairie
Willamette Valley and Puget Trough
Columbia Basin
High Lava Plains
Blue Mountains
Oregon and Washington Coast Ranges
Western Cascades
Owyhee Uplands
Northwestern Basin and Range
Eastern Cascades
Klamath Mountains
Modoc Plateau
Lahontan Basin
Southern Cascades

Map 6

Risk of Decline of Conifer Vigor

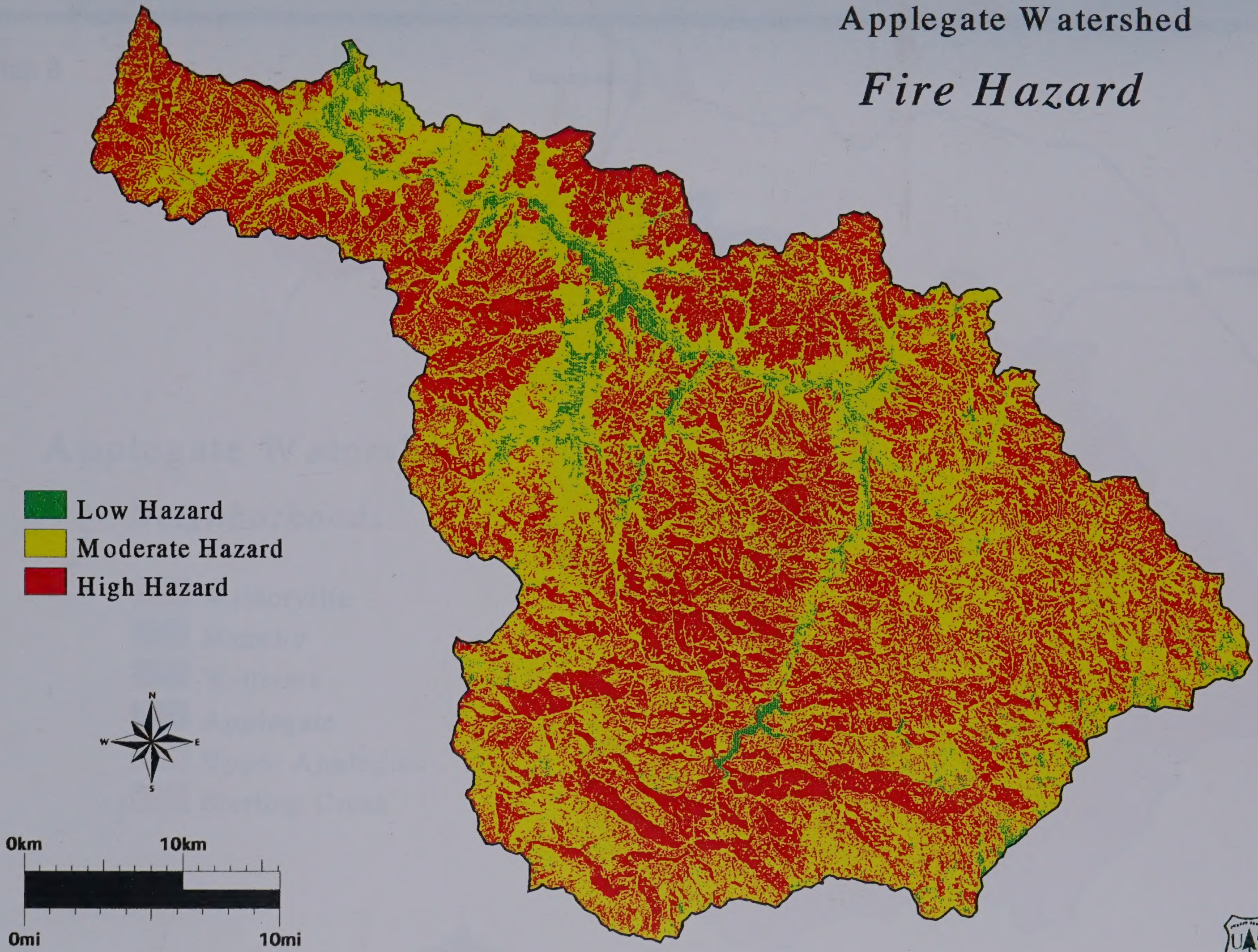
Applegate Watershed

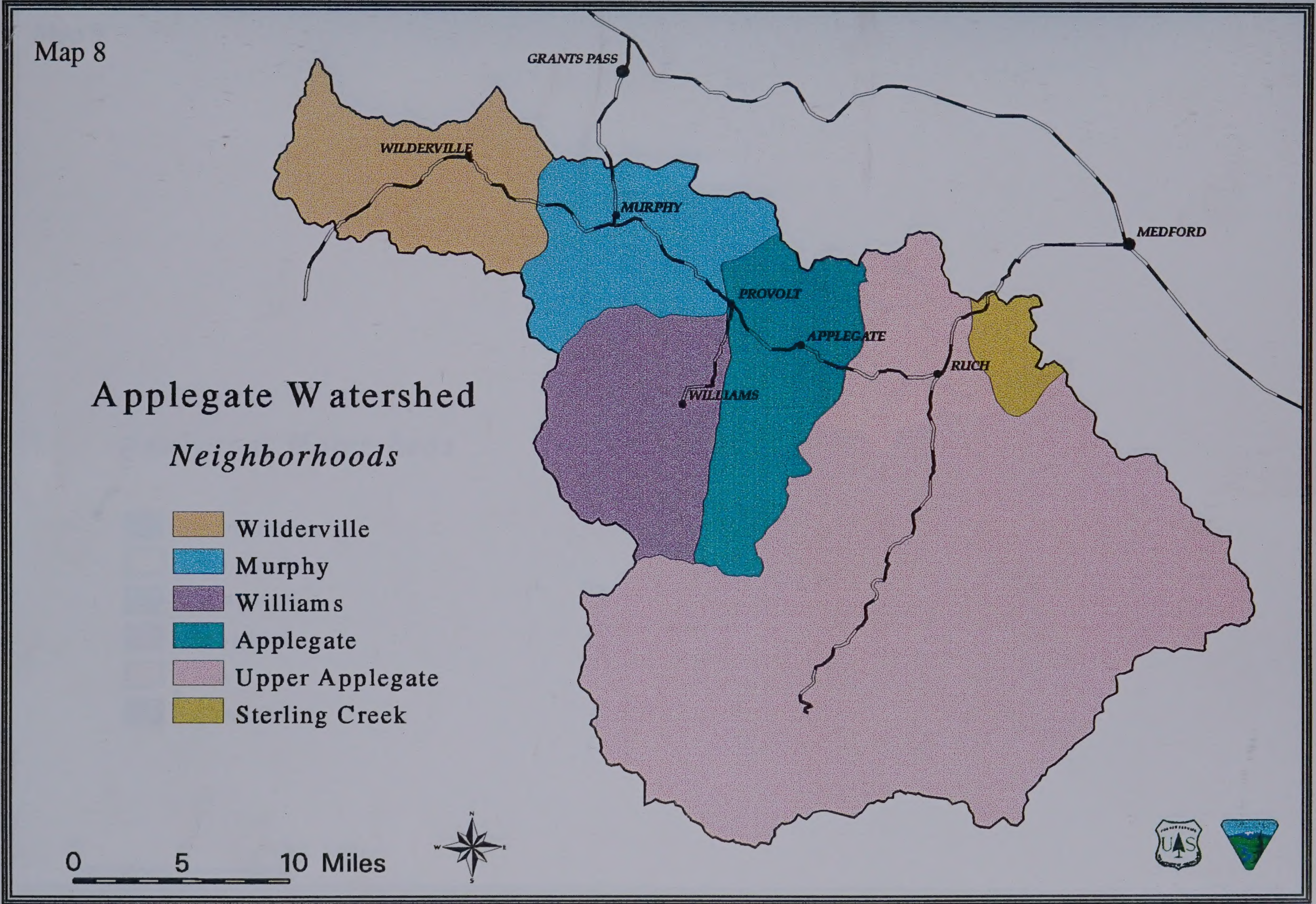

🟥 Extreme Risk
🟦 Very High Risk
🟨 High Risk
☐ Non Forest
0
5
10 Miles
N
W
E
S

Map 7

Applegate Watershed

Fire Hazard


🟩 Low Hazard
🟨 Moderate Hazard
🟥 High Hazard
N
W
E
S
0km
10km
0mi
10mi



Map 8

Applegate Watershed

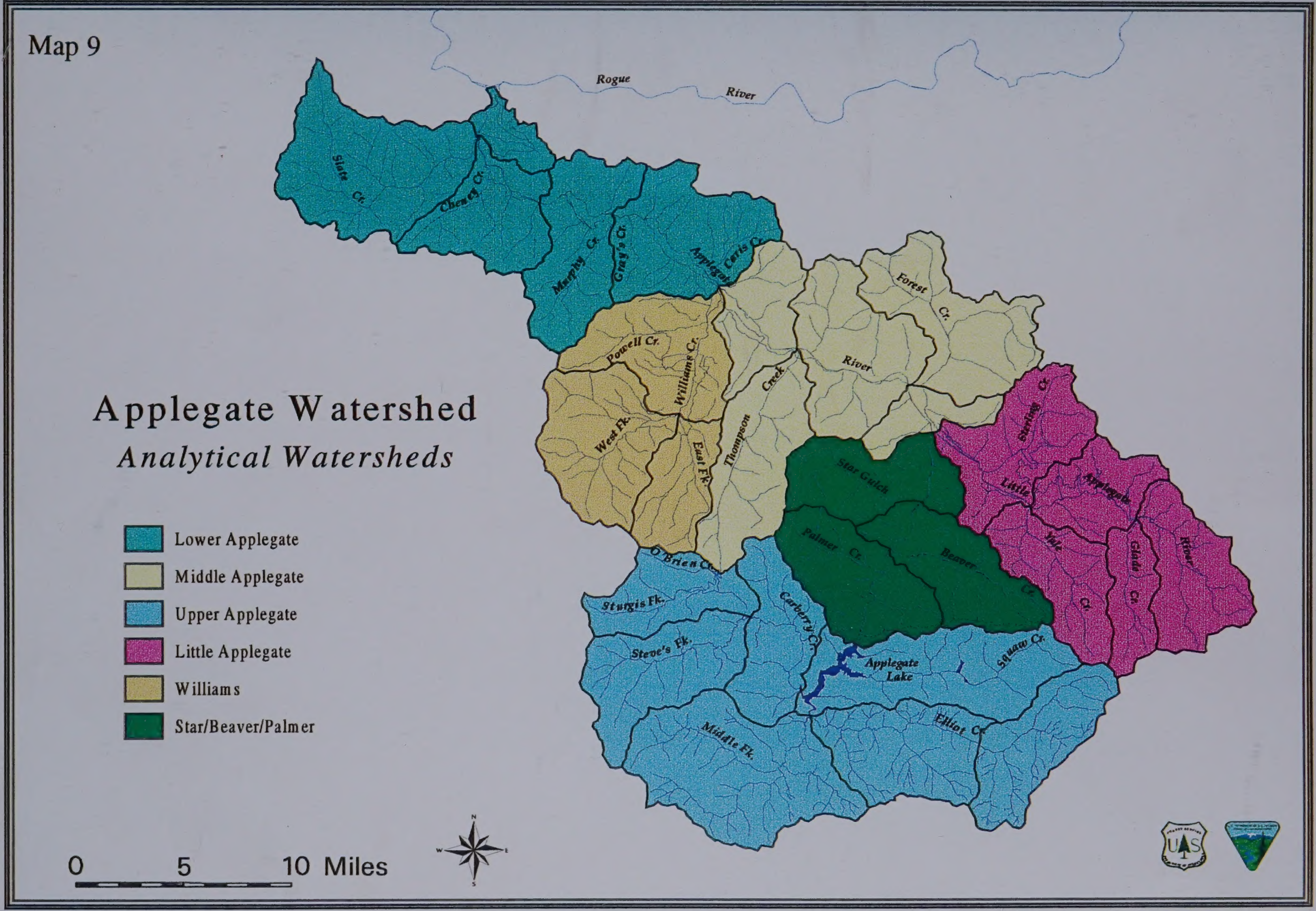
Neighborhoods

Wilderville
Murphy
Williams
Applegate
Upper Applegate
Sterling Creek
GRANTS PASS
WILDERVILLE
MURPHY
PROVOLT
APPLEGATE
WILLIAMS
RUCH
MEDFORD
0 5 10 Miles
N
S
E
W

Map 9

Applegate Watershed

Analytical Watersheds


Lower Applegate
Middle Applegate
Upper Applegate
Little Applegate
Williams
Star/Beaver/Palmer
Rogue River
Slate Cr.
Cheney Cr.
Murphy Cr.
Gray's Cr.
Applegate
Caris Cr.
Forest Cr.
River
Powell Cr.
Williams Cr.
West Fk.
East Fk.
Thompson Creek
Star Gulch
Palmer Cr.
Beaver Cr.
Sterling Cr.
Little Applegate River
Yale Cr.
Glade Cr.
O'Brien Cr.
Sturgis Fk.
Steve's Fk.
Carberry Cr.
Applegate Lake
Squaw Cr.
Elliot Cr.
Middle Fk.
0 5 10 Miles
N
E
S
W